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RESPONDING TO THE THREAT FROM THIRD
WORLD AIR DEFENSE SYSTEMS: A COMPARISON
OF U.S. POLICY OPTIONS

by

Glen Charles Ackermann

December, 1990

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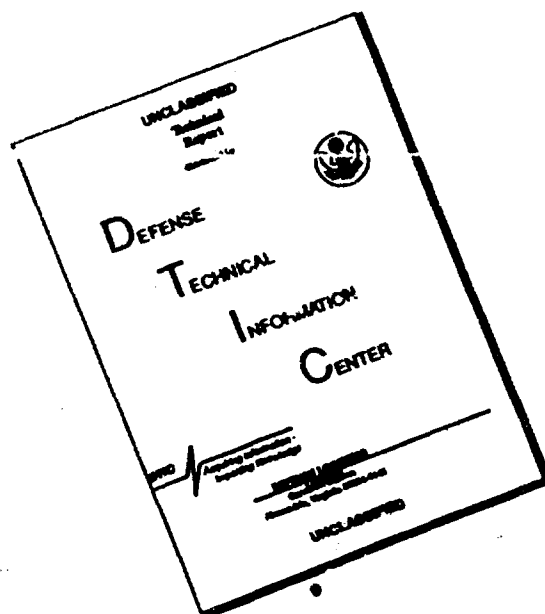
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**Responding to the Threat from Third World Air Defense Systems: A
Comparison of U.S. Policy Options**

by

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Lieutenant, United States Navy
B.S., Old Dominion University, 1982

Submitted in partial fulfillment of the requirements for the degree of
MASTER OF ARTS IN NATIONAL SECURITY AFFAIRS

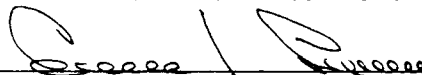
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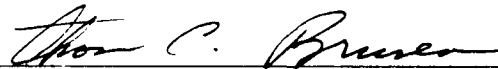
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ABSTRACT

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I. INTRODUCTION

Since the end of World War II the majority of U.S. defense planning has been oriented toward central Europe and the related Soviet threat. During this time U.S. policy in the Third World has been one of containment of the USSR in a political sense, while military confrontation has played a lesser role. To leap containment and establish a presence, and gain influence in the Third World, the USSR began transferring arms. Soviet arms transfers must be singled out for emphasis in any study of Soviet policy in the Third World, because they are the primary instrument used in their quest for influence in developing countries [Ref. 1:p. 170]. Initially the USSR, Western Europeans, and the U.S. supplied second hand weapons or older, less capable type arms. By the 1970s there were several significant shifts in arms export trends throughout the world. One major shift was the significant increase in volume of arms transferred, primarily to Third World nations. The second major shift was in the quality of weapons transferred. Whereas the U.S. had generally led in the export of advanced technology, the USSR during the late 1970s started to increase the sophistication of weapons exported. Another shift was the increase in arms supplied by Western Europe and the emergence of second-tier suppliers such as Israel, China, and Brazil. The final shift concerned the dramatic increase in the number of recipients of arms, both old and advanced weapons. [Ref 2:p. 3] The increase in recipients and suppliers was due to a variety of political, military, and economic reasons.

Since the early 1980s world wide arms transfers have steadily declined due to declining availability of cash, Third World debt, and the inability of

countries to absorb the large amounts of weapons already purchased. In an overall assessment this seems to be a positive trend in the stability of the international system. Yet, a more careful look may lead to a different assessment of international stability. The amount of arms being transferred is certainly declining, yet the quality and sophistication of arms being transferred is increasing at an unprecedented rate. Nations are no longer satisfied with second hand or obsolete equipment. Nations now require advanced technology and weapons of mass destruction to be satisfied. From F-15s, Mig-29s, and Mirage 2000 jets to the Improved Hawk and SA-13s, the rate of advanced technology transfer is sobering.

Today, there is a new, ominous and increasing threat to world peace. Gone are the "stable" days of the Cold War and its replacement is an increasingly unstable Third World. These Third World countries have shown a tendency to settle their disputes by force of arms, as Iraq has shown in its current dispute with Kuwait. As these arms become more sophisticated and as the world becomes more interdependent in nature there will be a tendency for these conflicts to grow wider in scope, encompassing more countries.

This paper addresses some aspects of this development. It will look at the extent of air defense proliferation in the Third World, the countries that will be suppliers in this "post" cold war multi-polar environment, and the impact this increased ability will have on the four U.S. Navy missions. Given this impact, policy options are put forth, and a final question is explored--is the U.S. willing to overcome the problems created by proliferation in the Third World?

In order to best illustrate the effect increased air defense capabilities will have on the United States and its Navy, this thesis is organized as follows. Chapter I introduces a hypothetical Third World conflict scenario that demonstrates the ability of many Third World nations to interfere with U.S. Navy operations throughout the world. Chapter II briefly describes the capabilities of air defense weapons, looks at the extent of their proliferation, and addresses selected capability by region. Chapter III investigates the motivation for acquiring air defense weapons, and the export trends of these advanced weapons. It addresses who the major suppliers are, and the emergence of second tier suppliers. Chapter IV addresses the implications air defense weapons proliferation will have on the four U.S. Navy missions. Chapter V identifies three policy options for planners to consider in order to realistically approach the problems created by proliferation. Chapter VI concludes with the question--is the U.S. willing to overcome the problems created by air defense weapons proliferation in the Third World? It is hoped that the broad scope of this study will enhance the ability of planners to address air defense weapons proliferation in the Third World, U.S. national interests, and force structure requirements for Third World contingencies of the future.

A. U.S. MILITARY OPERATIONS IN THE NEW WORLD--A SCENARIO

On April 30, 1992 India invaded Pakistan. India justified the invasion on the grounds that Pakistan was supplying Moslem rebels in Kashmir with weapons, training, and money. Thus, by supplying these items, the Pakistani government was interfering with Indian internal matters. Kashmir is the only Indian state where Moslems outnumber Hindus. Pakistan and India

have been fighting over Kashmir since the British withdrawal in 1947. The Indians' claim that Pakistan has infringed upon their sovereignty and they must be punished. Pakistan has a capable American-supplied military force, but it is questionable as to how long they can hold out against the much larger Indian forces without substantial American re-supply and/or intervention.

In order to protect American strategic interests with Pakistan, and to maintain American prestige in the Moslem world and with other allies in the region, the United States decides to continue arms shipments to Pakistan and to replace losses. In response to the American position, the Indian government hints at possible interdiction of the resupply. With numerous options available to them, the Indian "threat" should be viewed very seriously by American analysts.

Fears of a Pakistani victory with American support, that would increase "western" influence around the region, prompt Iran into a temporary alliance of convenience with India. Sensing U.S. indecision and vulnerability in the region, the Iranian government declares that the Straits of Hormuz are closed to all "western" bound oil tankers. This event sends shock waves through U.S. and allied stock markets, and the possibility of oil shortages exists.

After consulting with the National Security Council, the JCS, his advisors, and the leaders of Congress, the President declares that the U.S. and allied ships cannot be ordered about or excluded from any international waters. To show resolve, the President orders the Navy to escort any and all applicable vessels and to conduct freedom of navigation operations where applicable.

By May 4, 1991 two carrier battle groups, Nimitz and Kennedy, are steaming towards the Indian Ocean. These battle groups, augmented with frigates and destroyers for escort duty, will provide air cover for aerial and naval resupply of Pakistan and escort duty for merchants passing through the Straits and going to Karachi.

On May 7, 1991 the Indians declare a 50 NM exclusion zone off the coast of Pakistan. This is accompanied by a warning that any attempt to penetrate the zone or to provide airborne resupply will be met grave consequences. Later in the day a U.S. Air Force C-141 is shot down. It is believed that an Indian MIG-29 was responsible. The following morning an Air Force C-5 is turned back by two Indian Mirage-2000s.

As of May 8, 1991 the two carrier groups are almost in position. The Indian blockade seems fairly secure and the Iranians are wreaking havoc on Persian Gulf traffic. The ground war is slowly turning against Pakistan and resupply is imperative. A NATO meeting is called in Brussels to assess the impending economic crisis and to discuss military options. The President is again meeting with his advisors to decide U.S. options. The Soviet Union is quietly sitting on the sidelines nursing its own economic and political problems.

The scenario projects a future crisis in which Third World nations with advanced air defense weapons capability can seriously effect the use of U.S. Navy air power in certain regions of the world. Concern over this type of scenario already exists, surfacing in Lebanon, the protracted Iran-Iraq conflict, and the current Iraq-Kuwait conflict. In Lebanon, two navy jets were shot down and one severely damaged by Soviet SAMs, while in Iran the American

made F-14s and I-HAWK SAMs were a serious deterrent to American forces in the Persian Gulf.¹ With today's arms transfer trends it is not only Soviet equipment that deters, but also Western equipment, which may be even more difficult to counter.

The forces central to this scenario are representative of the military capabilities which have emerged as a result of the vast technology transfer of the 1980s. Though the amount of arms transferred has declined since the early 1980s, the sophistication of the weapons has dramatically increased. The air defense capability of the scenario participants is outlined below.

1. India

India has an impressive array of air-defense capabilities. The army maintains 26 SA-6, 620 SA-7, 20 SA-8A/B, SA-9, and 25 British Tigercat launchers. The Indian Navy sails two ex-British aircraft carriers, each capable of carrying Sea Harrier strike/fighters. The navy has a total of 23 Sea Harriers. The Indian Navy also has numerous Destroyers and Frigates with SA-N-1, SA-N-4, and Seacat SAM systems. The Indian Air Force flies 22 fighter squadrons. Of these 22 squadrons, 6 contain MIG-29s and Mirage-2000s (over 100 total aircraft) which are two of the most technologically advanced aircraft around today. These 22 squadrons are armed with AA-2, AA-7, R-550 Magic,

¹According to a recent study, Iranian F-14s and Hawk missiles posed a significant threat to U.S. ships and aircraft operating in the Persian Gulf. Though the status of this equipment was never certain, each of these systems could have destroyed American lives and equipment [Ref. 3:pp. 74-78]. Considering the USS Vincennes (CG 49) shot down an airliner thinking it was a lone F-14 shows how much emphasis is placed on advanced air defense capability by U.S. Navy operators.

and Matra Super 530D Air to Air Missiles. The Indian Air Force also mans SAM batteries consisting of SA-2 and SA-3s. [Ref. 4:p.159]

2. Iran

While Iran's air defense weapons systems are not as extensive as India's, the fact that many are Western made causes considerable problems for American planners. The Iranian army maintains some 30 Improved HAWKs, SA-7s, and Swedish RBS-70s. The Iranian Navy's air defense weapons include three destroyers loaded with 4x2 SM-1 surface to air missiles. Reports vary as to the number of serviceable aircraft in Iran's Air Force. According to the most recent *Military Balance*, Iran maintains some 20 F-4 D/E, 20 F-5 E/F, and F-14s. Each of these aircraft can be fitted with one or mote of the following Iranian missiles: AIM-54, AIM-9, or AIM-7. The Iranian Air Force also has 5 sqn with 30 Rapier SAM, 25 Tigercat SAM launchers, and 50 HQ-2J (Chinese version of SA-2) SAM systems. [Ref. 4:p. 100]

3. Pakistan

While the Pakistani air defense weapons would be no threat to U.S. forces in the given scenario, to show the extent of weapons proliferation in the region, the Pakistani forces will be listed. The Pakistani army possesses 100 Stingers, 144 RBS-70s, 6 batteries of Crotale, and the Anza SAM is reported to be in service. The Pakistani Navy has 1 Destroyer, and 2 Frigates armed with British Seacat SAMs, and 4 Frigates armed with SM-1 MR SAMs. The Pakistani Air Force consists of 451 aircraft, including the Mirage III, Mirage 5, Q-5, J-6/JJ-6, J-7s, and 40 F-16s. Many of these aircraft can be armed with their supplies of AIM-7s, AIM-9s, and R-530s and the R-550 magic. [Ref. 4:p. 169]

The scenario and selected inventories are presented in order to demonstrate the ability of Third World nations with advanced technology to interfere with U.S. Naval operations due to their ability to acquire and produce these weapons. The scenario presented is by no means an isolated incident, and could happen in many regions of the World. According to the recent Department of Defense study *Discriminate Deterrence*, the diffusion of weapons and the technological developments in the Third World require a reorientation of U.S. strategy to increase emphasis on regional crisis [Ref. 5: p. 9]. The implications of advanced technology weapons proliferation has moved to the forefront of military planners' thoughts. According to the 1990 Joint Military Net Assessment, "the national military objectives serve the national security goal of preserving the U.S. and a free nation with its fundamental institutions and values intact, while deterring war. One of these national military objectives is to preclude military significant technology transfer to potential adversaries." [Ref 6: p. ES-2]

The national objective of preventing technology transfer is almost exclusively associated with ballistic missiles, and nuclear or chemical weapons. The MTCR and the non-proliferation treaty are always at the fore of technology transfer discussions, and when air defense weapons "legally" in service or those being transferred to the Third World are discussed, interest wanes substantially. Yet when one ponders future U.S. force reductions and the current air defense capability already operational and in the pipeline, these more probable threats from air defense weapons need to be addressed.

II. THE EXTENT OF AIR DEFENSE WEAPONS PROLIFERATION

At a time when superpower cooperation is reaching new heights, arms control fever is in the air, and defense budgets are being cut, the proliferation of advanced weapons is continuing unabated. This proliferation is not limited to one isolated region in the world, but is a global problem that has potential impact on current naval operations and naval missions. As air defense weapons and advanced technology continue to be supplied there is a growing internationalization of knowledge on how to operate and maintain these weapons. This knowledge will also, though more slowly, enable more nations to produce air defense weapons. The diffusion of capability and knowledge will exacerbate Third World regional tensions and increase the intensity of the conflicts that will ensue. U.S. Navy planners must recognize the potential extent of this problem and the current capabilities that already exist.

A. ADVANCED AIRCRAFT AND SURFACE TO AIR MISSILES

Since the end of World War II land and sea warfare have become increasingly dominated by aircraft. With all things being equal, success on the battle field or ocean now goes to the side that controls and uses airspace to their best advantage.² Defense of this airspace is becoming increasingly

²The Israelis have learned this lesson well. During the 1967-70 war of attrition, Israel lost only 22 aircraft to air defense. By the 1973 war Egypt had updated its air defense systems, and the Israelis lost 40 aircraft in the first 48 hours. The message was clear and Israel was back on top during the 1982 Bekaa Valley air battle. (See *Airpower Journal*, Winter 1989, p. 60-61)

important and difficult. With sophisticated equipment such as modern attack aircraft, stealth, and stand off weapons, nations must be prepared to protect their interests, assets, and sovereignty on the land and sea.³

Defense of national airspace is fundamental to every nation's security. To achieve effectiveness in defense of airspace, many Third World nations are turning to state-of-the-art equipment, advanced surface to air missiles (SAMs) and aircraft. Many Third World nations now have far more modern air defense systems than some NATO countries [Ref. 7:p. 13]. This is an impressive realization considering what Argentina was able to do with a relatively unsophisticated air force against a major western power! In today's arms transfer environment there is a virtual smorgasbord of air defense equipment for any Third World nation to choose from. This thesis is concerned only with the most advanced types of these weapons. Aircraft to be examined are fourth generation fighter/interceptors that have been exported; F-15, F-16, F-18, Tornado, MIG-29, and Mirage 2000. SAMs considered are those with production and operational dates of the late 1970s and beyond, and have been exported: Crotale, Shahine, Roland, Javelin, Rapier, SA-13, SA-14, I-HAWK, and Stinger. Certain caveats apply to the figures used to compile the data in Figures 1 and 2, section B. Exact qualitative and quantitative data on arms transfers are difficult to compile due to attrition, deliveries to be

³According to Norman Friedman writing in *Proceedings* (July 1990, p. 107), air attacks are probably the single greatest threat to U.S. Naval forces, presented by Third World powers.

made, and the updating of equipment.⁴ The following Tables, I and II, list the aircraft and SAM systems to be discussed and who the suppliers of these systems are. Appendix A and B list the capabilities of each system.

TABLE I--AIRCRAFT AND SUPPLIER

AIRCRAFT	COUNTRY/SUPPLIER
MIG-29	USSR
Tornado ADV	Panavia/UK
F-16	USA
F-15	USA
F-18	USA
Mirage 2000	France

* Source [Ref. 8]

TABLE II. SAM AND SUPPLIER

SAM	COUNTRY/SUPPLIER
Crotale	France
Shahine	France
Roland	Euromissile
Javeline	UK
Rapier	UK
SA-13	USSR
SA-14	USSR
I-HAWK	USA
Stinger	USA

* Source [Ref. 7] and [Ref. 9]

⁴Updates and improvements are constantly being made on most surface-to-air missiles. This makes the process of tracking exact types of SAMs very difficult.

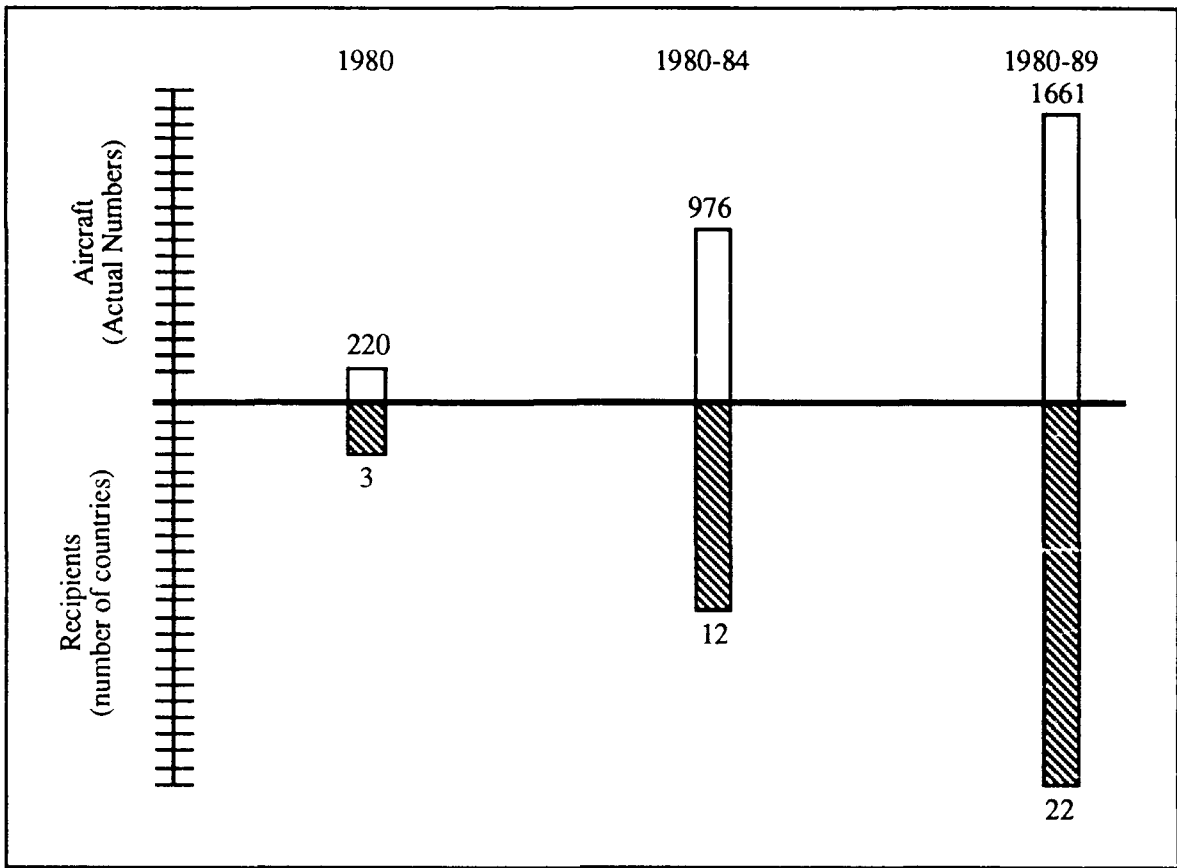


Figure 1. Proliferation of Advanced Aircraft--Arms Transfer Agreements
(compiled from *SIPRI Yearbooks* 1981-1990)

B. ASSESSMENT OF THE EXTENT OF PROLIFERATION

Ballistic missile proliferation is the object of much international attention because it is viewed as aggressive or offensive, while the transfer of air defense weapons is viewed differently. Air defense of a nation is a legitimate right and the duty of every government.⁵ Also, while ballistic missiles in the

⁵Of course, "legitimate defense needs" is the cry of both suppliers and the recipients when a sale is being negotiated, but most advanced air defense

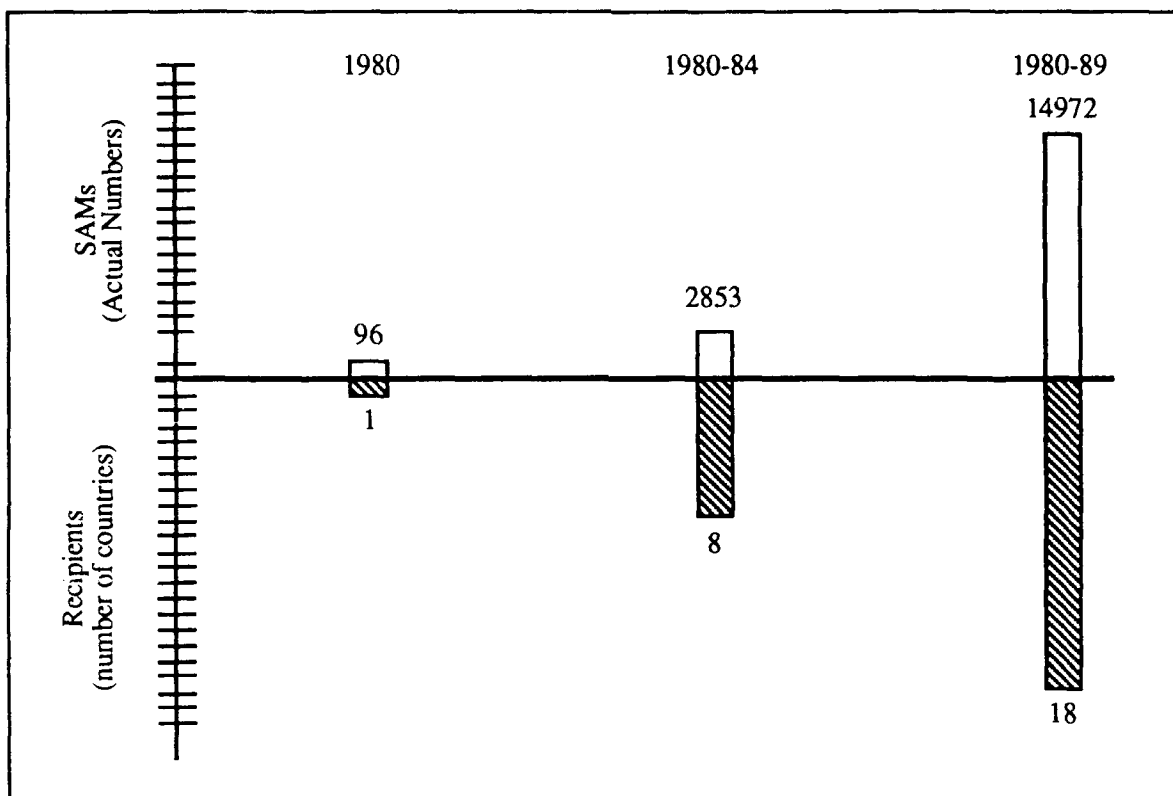


Figure 2. Proliferation of Surface-to-Air Missiles--Arms Transfer Agreements
(compiled from *SIPRI Yearbooks 1981-1990*)

Third World are typically older models, air defense weapons transfers have recently become state-of-the-art transfers. These weapons are in the hands of many Third World nations which the U.S. could certainly consider adversaries in any number of scenarios. Nations such as Cuba, Libya, Syria, Iraq, and North Korea all have advanced air defense capabilities in areas where the U.S. Navy operates on a regular basis. Along with adversaries there are many "allies" within the Third World with these weapons. Of

aircraft have the capability to perform air-to-ground missions [Ref. 10:p. 123]. The F-18 is the premier example of dual capability in air defense aircraft [Ref. 11:pp. 395-397]. Even surface-to-air missiles can be considered offensive if the country using them is invading another sovereign nation. Naval planners currently in the Persian Gulf may not quite agree with the "legitimacy" of Iraq's air defense weapons!

course allies have a way of becoming adversaries as in the case of Vietnam, Iran, and possibly Iraq's nineteenth province Kuwait. While there are huge inventories of such older air defense weapons as the F-4/5, MIG-21/23, and SA-2/3s, the weapons of concern in this study are state-of-the-art.

While advanced technology from the Soviet Union is a major concern for U.S. planners, it is not the only one. Another major concern for the U.S. is the fact that many of the air defense weapons transferred are from "Western" nations. U.S. equipment has typically been developed with the USSR in mind and has considerably less capability against other equipment made in the West or the U.S. During the period 1980-1989 the major exporters of advanced aircraft were the Soviet Union, the United States, France, and Great Britain.⁶ As previously stated, advanced air defense aircraft are defined as fourth generation aircraft with a fighter/interceptor capability, and have been exported. The aircraft that fit these requirements, the Mirage 2000, MIG-29, Tornado, F-15, F-16, and F-18 are shown in Figure 1. As this figure shows, the proliferation of these aircraft throughout the 1980s has been explosive. In 1980 only 3 Third World nations had signed arms transfer agreements for a total of 220 advanced aircraft. By 1984 the cumulative totals had reached 12 and 976 respectively, and by the end of the decade these cumulative totals had reached 22 and 1661. These figures can be somewhat misleading in that attrition and deliveries yet to be made are not included. But, for comparative purposes these figures highlight the Third World

⁶Great Britain and FRG are considered together because of their cooperation in the Tornado aircraft project. France, and Germany, are also grouped together because of their cooperation with Euromissile.

interest in advanced aircraft and how much these weapons have proliferated in the short span of ten years. When comparing the totals in Figure 1 to all types of aircraft delivered for roughly the same period, one can further grasp the significance. From 1982-1989 for all combat aircraft, both supersonic and subsonic attack and fighters, the total number delivered was 3385 [Ref 12:pp. 1-59]. Thus the ratio of advanced aircraft to total aircraft is approximately 49%. This figure is significant in that transfers of the world's most capable aircraft now comprise almost 50% of the export market. More sobering is the fact that many "experts" now predict that most conflicts will take place within this Third World environment.

The nations that produce and export advanced aircraft are the same nations that are capable of producing and exporting advanced SAMs. These SAMs are the most advanced type for export and have production and operation dates in the late 1970s and early 1980s. As shown in Figure 2, the pattern established for advanced aircraft exports to the Third World holds true for advanced SAM exports. In 1980 only 1 arms transfer agreement was signed for these more advanced systems for only 96 missiles. The cumulative figures for these systems jump dramatically to 8 and 2853 in 1984 and to 18 and 14,972 in 1989. When compiling total SAM deliveries for the period, 1982-1989, the numbers add up to 33,895 [Ref 12:pp. 1-59]. The SAM ratio is 44% and shows that as with advanced aircraft, the Third World interest in advanced SAMs seems to be increasing to a point where certain nations may well be fielding a substantial number of arms equal in quality to that of United States systems.

C. CAPABILITY BY REGION

Because the United States is a maritime nation whose continued growth and prosperity is dependent to a large extent on free access to the world's oceans, the U.S. navy is required to operate and maintain a presence in many regions. To grasp the significance of air defense weapons proliferation, selected regions and the capabilities of nations within these regions will be presented. The five regions selected have been chosen because of the U.S. Navy's high operating tempo within those regions, and because of the area's strategic significance. The effect proliferation will have on the four navy missions of sea control, power projection, strategic sealift, and strategic deterrence, will be discussed in section four. Only capabilities in the following regions will be described: the Caribbean basin, the Mediterranean, the North Arabian Sea, the Straits of Malacca, and the Straits of Korea. Table III shows the extent of air defense weapons proliferation in the five identified regions.⁷

1. The Caribbean Basin

Currently the U.S. Navy does not have any commitments to maintain a carrier battle group or a surface action group in the Caribbean. But, the navy does conduct yearly exercises such as UNITAS, and because of the recent emphasis on drug intervention individual ships and squadrons have dramatically increased their presence in this region. General interests in

⁷For an excellent study on U.S. Navy interests, presence, and response, see the entire Center for Naval Analyses seminar series on "Alternative Maritime Deployments Projects" [Ref. 13].

the area can be grouped under the following six categories: economic, presence of U.S. citizens, geo-politics, stability, facilities, and lines of communications.⁸ Cuba is currently the only nation in the region with advanced air defense capabilities. These capabilities include the MIG-29, the SA-13, and the SA-14. The range of the MIG-29 allows for Cuban interdiction from Florida and Mexico to Central America. The SA-13 and SA-14 enable Cuban targets to operate knowing they are protected with state-of-the-art equipment.

2. Mediterranean

For over twenty years the U.S. Navy has maintained 1-2 carrier battle groups in the Mediterranean as a permanent presence. Current regional concerns abound, from guarding NATO's southern tier and "monitoring" Libya to maintaining access to the Suez Canal and protecting U.S. interests in the never ending Arab-Israeli conflict. Future concerns may involve the instability that seems to be slowly spreading in the Balkans area. [Ref. 13:p. 2-2] Third World advanced air defense capability seems to be mainly concentrated in the Central and Eastern sub-regions of the Mediterranean. The four nations that have advanced capability can be divided into two groups: potential adversaries, Libya and Syria, and temporary allies, Israel and Egypt.⁹ Considering the changing state of alliances in the world today, the threat axis

⁸During a NATO-Warsaw Pact conflict, the resupply of Europe would depend on a substantial amount of equipment that would flow through the Caribbean Basin [Ref. 13:p. 1-2].

⁹The 1980s had proved to be a deadly time where the U.S. and Libya are concerned. As recently as January 4, 1989, two F-14A Tomcats downed two Libyan MIG-23s in the central Mediterranean.

could be in any direction.¹⁰ This threat must certainly be considered serious by U.S. planners when U.S. forces are operating in the area in small numbers. A large American force could feel secure, but a smaller force could be overwhelmed by large numbers of high technology weapons.

3. North Arabian Sea

Since the fall of the Shah of Iran in the late 1970s, the U.S. has kept 1.5 carrier battle groups on station in the Indian Ocean region. This does not include the five ship MIDEASTFOR that has been in the region since the British withdrawal. Recently this presence dropped significantly due to the resolution of the Iran-Iraq war. [Ref. 13:p. 3-3] But, due to the current Kuwait-Iraq crisis, this presence has grown even larger than when it peaked in 1980s. Stated United States interests in the region are as diverse as the area is large. Tanker escort, freedom of navigation operations, embargo enforcement, assurance to friends, position for crisis response, geo-political interests within the subcontinent and the Middle East, and secure oil have all been or are currently considered U.S. national interests. The advanced air defense threat in the region is equally as large and diverse. As Table III shows, the amount of advanced weapons in this region is staggering. Almost as staggering a problem is trying to determine which nation is friendly, and which nation is a potential adversary. Kuwait is the obvious example of how alliances can change, but a more subtle current example is Pakistan. In order for the U.S. to continue supplying military and economic aid to Pakistan, President Bush

¹⁰The recent visit to Syria by Secretary of State Baker reflects this trend, along with the fact that the only U.S. ship sunk by a Third World nation in recent memory was the USS Liberty and she was sunk by Israel!

must certify to Congress that Pakistan does not have nuclear weapons. As of fiscal year 1991 the President has not done this and Pakistan stands to lose \$564 million dollars in U.S. aid. [Ref 14: p. 44] If this rift in relations continues, where will Pakistan and its Moslem population stand in future Middle East conflicts? These are just a few of the problems that confront the U.S. in this region of shifting alliances and high tempo operating tempo. The nations with advanced air defense capability in the region are: Oman, Qatar, Pakistan, India, Iran, Iraq (Kuwait), Saudi Arabia, United Arab Emirates, and Bahrain.

4. Straits of Malacca

When considering the nations that border the straits, one must consider that these nations control the most important transit point for U.S. WESTPAC forces. This narrow waterway (50 km at its narrowest point) can easily be threatened by Indonesia, Malaysia, or Singapore. American strategic interests in the region are varied and obvious, to include economics, geopolitics, and crisis response. A less obvious situation which may heighten U.S. interest in this region is the recent shift in arms transfers. The Middle East has traditionally been the major importer of arms, but recently, the arms suppliers have been focusing on Asia.¹¹ Presently, all three regional nations are on friendly terms with the U.S., but instability is not unknown to the region and Islamic fundamentalists (Indonesia) or a right wing turn (Singapore) could alter the current stability.

¹¹According to *SIPRI*, [Ref. 22:p. 195], the Middle East arms market has showed considerably, and the new focus is in Asia. But, with the recent jump in oil prices this trend may reverse itself again.

When looking at Table III, the existing individual air defense capability is of little consequence. If, however, the three nations combined forces in the near future they would possess a potent force in such a narrow waterway. Recent studies have shown that even with proliferation, U.S. Naval forces could still fight their way through the Strait, but would be hard pressed to avoid damage.¹²

5. Korean Straits/Sea of Japan

Assuming North Korea and South Korea do not unite in the swift fashion of the two Germanies, only the North Korean air defense capabilities will be discussed. This is a risky proposition considering the world situation, but with 40,000 troops still in South Korea the assumption seems valid. American presence is constant, with the carrier battle group permanently forward deployed in Japan. American interests in the area revolve around the Japanese and the South Koreans in the economic, geo-political, and security spheres. In so far as the North Koreans are already considered adversaries, a potential shift in alliances need not be addressed. While the North Koreans have tremendous amounts of military equipment, the only advanced air defense capability currently possessed is the MiG-29. This may not seem to be a tremendous threat, but in conjunction with their current missile threat and other anti ship capability, this threat must be considered credible. See Table III.

¹²The study done for the Defense Nuclear Agency [Ref. 15:p. 43] cited the threat to the USN from cruise and ballistic missiles in the Straits of Malacca. Using this study it is easy to extrapolate and arrive at the same conclusions with air defense weapons in place of missiles. The air defense aircraft on order by the nations in question all have air-to-ground/ship capability.

Currently most of these regions can be controlled with the concentration of U.S. forces that could be brought to bear against any one or most groups of these regional nations. But, as the actual numbers, not just types, of these weapons increase and as U.S. force structure is reduced, the ability of the U.S. Navy to assure victory may change. Even if the outcome does not change, the enormous price these advanced weapons may extract in equipment and personnel may be too high for America to pay while protecting precarious Third World interests. Figure 3 shows normal U.S. Navy operating areas throughout the world, and the threat posed to them by the enormous coverage of Third World air defense weapons. Appendix C shows specific combat aircraft radii in selected Third World regions.

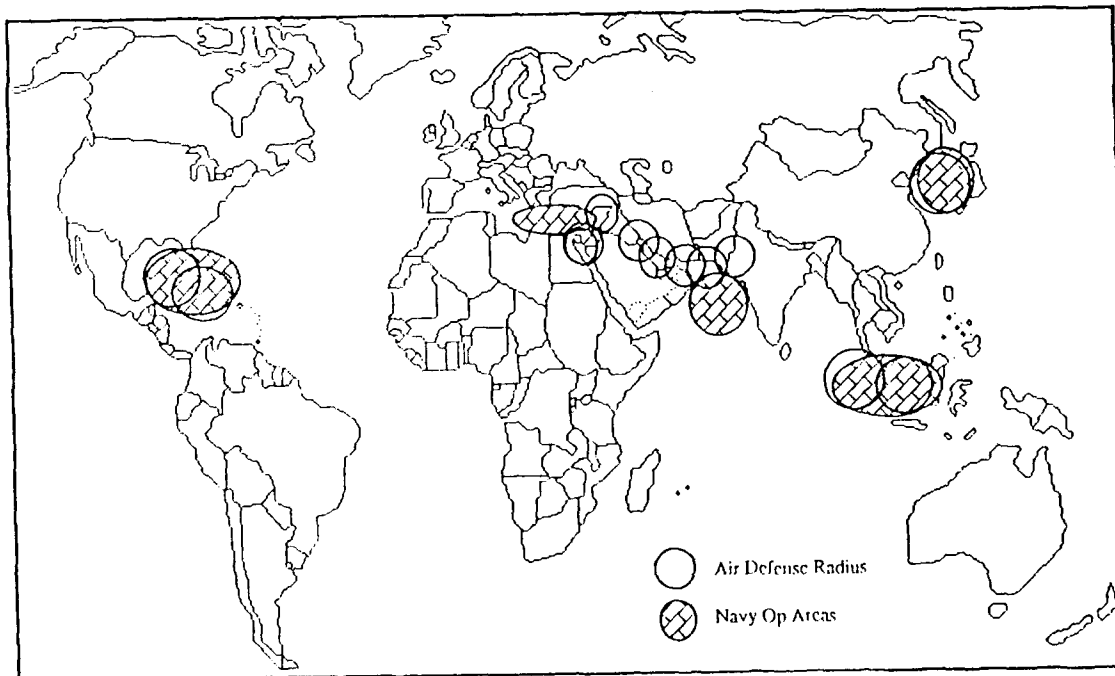


Figure 3. Air Defense Threats in Navy Operating Areas

TABLE III. ADVANCED AIR DEFENSE CAPABILITY IN THE THIRD WORLD

Region	Country	Missile (SAM)	Aircraft	Source	Status
1--Caribbean Basin	Cuba	SA-13 "Gopher"		USSR	Deployed
		SA-14 "Gremlin"		USSR	Deployed
			MIG-29	USSR	Deployed
2--Mediterranean	Egypt	Crotale		France	Deployed
		I-HAWK		USA	Deployed
			F-16	USA	Deployed
			Mirage-2000	France	Deployed
	Israel	I-HAWK		USA	Deployed
			F-15	USA	Deployed
			F-16	USA	Deployed
	Libya	SA-13		USSR	Deployed
		SA-14		USSR	Deployed
		Crotale		France	Deployed
	Syria	SA-13		USSR	Deployed
			MIG-29	USSR	Deployed
3--North Arabian Sea	Bahrain	Stinger		USA	On order
			F-16	USA	On order
	India		MIG-29	USSR	Deployed
			Mirage-2000	France	Deployed
	Iran	I-HAWK		USA	Deployed
	Iraq	SA-13		USSR	Deployed
		SA-14		USSR	Deployed
		Roland II		Euromissile	Deployed
			MIG-29	USSR	Deployed
	Kuwait	I-HAWK		USA	Deployed
			F-18	USA	On order
	Oman	Javelin		UK	On order
			Tornado	UK	On order
	Pakistan	Crotale		France	Deployed
		Stinger		USA	Deployed
			F-16	USA	Deployed
	Qatar	Roland II		Euromissile	Deployed

**TABLE III. ADVANCED AIR DEFENSE CAPABILITY IN THE THIRD
WORLD (CONTINUED)**

3--North Arabian Sea (Cont'd)	Qatar (cont'd)	Stinger		USA	Deployed
		Crotale		France	Deployed
	Saudi Arabia	Shahine		France	Deployed
		I-HAWK		USA	Deployed
		Stinger		USA	Deployed
			Tornado	UK	Deployed
			F-15	USA	Deployed
	UAE	Crotale		France	Deployed
		I-HAWK		USA	Deployed
			Mirage 2000	France	On order
Region 4--Straits of Malacca	Indonesia	I-Rapier		UK	Deployed
			F-16	USA	On order
	Malaysia	I-Rapier		UK	On order
		Javelin		UK	On order
			Tornado	UK	On order
			F-16	USA	On order
	Singapore		F-16	USA	On order
5--Straits of Korea	N. Korea		MIG-29	USSR	Deployed

*Source [Ref. 4] and [Ref. 16]

III. THE IMPORT AND EXPORT OF AIR DEFENSE CAPABILITY: MOTIVES AND TRENDS

Having presented a possible Third World scenario with direct effects on the United States and Western Europe, and having described the extent of advanced air defense weapons proliferation in regions where the U.S. Navy has extensive operations and interests, it is now time to investigate import and export trends and motives.

A. RECIPIENT MOTIVES

An important aspect of Third World arms proliferation is the motivation behind the buildup. Why do these nations import or desire to produce large amounts of conventional arms? Will this demand continue at high levels in the post-cold war period, particularly for air defense weapons? This question has very complicated answers, yet it does need to be briefly addressed. As Table IV shows, even though the total amount of arms imported did drop somewhat in the late 1980s the amounts are still substantial and may increase again with the current Middle East crisis and rising oil prices. Furthermore, air defense weapons transfers rose continuously throughout this period. Even as total imports of conventional weapons slowed in the middle to late 1980s, the trend for updating and replacing air defense weapons continued at a brisk pace (Figures 1 and 2, and Table III).

Probably the most important rationale for imported arms can be traced to the breakup of colonial empires and the subsequent rise in the number of

independent states from approximately 60 to 150. A universal symbol of sovereignty and status is derived from a certain amount of military power.

TABLE IV. THE LEADING IMPORTERS OF MAJOR WEAPONS, 1985-89

IMPORTERS	1985	1986	1987	1988	1989	1985-1989
India	1876	3683	4585	3383	3819	17,345
Iraq	2871	2447	4247	2005	418	11989
Saudi Arabia	1447	2395	1956	1770	1196	8764
Syria	1690	1508	1169	1172	336	5876
Egypt	1282	1665	2347	348	152	5795
North Korea	977	876	487	1383	1553	5275
Afghanistan	82	611	687	939	2289	4610
Angola	694	975	1135	890	24	3719
Libya	969	1359	294	65	499	3186
Taiwan	664	866	640	513	263	2946
Iran	710	746	685	538	261	2940
Pakistan	675	616	467	467	694	2919
South Korea	388	267	597	934	607	2794
Israel	193	446	1629	327	93	2687
Thailand	305	74	644	510	330	1862
others	5753	5026	4601	4012	3893	23285
TOTAL	20,576	23,560	26,170	19,256	16,427	105,989

* Aggregate imports. Figures are in U.S. \$m at constant 1985 prices. Source [Ref. 16]

This correlates with the low level of armaments in the world as recently as the 1960s. As many nations started to realize their independence, superpower competition within the Third World changed this arena into a

proxy and leverage battle for political spheres of influence.¹³ These leverage and proxy battles are highlighted by substantial numbers of arms transfers between the East and West bloc nations and their Third World allies. More recently as the world became more multi-polar, regional powers have started to realize their new found strength and independence, and have desired more advanced weapons for their own motives. Of course the large oil revenues of the Middle East and the economic boom of the Pacific rim have played a major role in the ability and motivation to acquire arms. [Ref 17: p. 131]

Certainly every nation has a basic fundamental right to raise and support some form of military force. But what is the specific rationale for acquiring air defense weapons? Of course there is a certain status in flying the same aircraft that the superpowers and European powers fly. Yet the overriding reason must be linked to sovereignty. Who could deny a nation the right to protect its people and assets? Whereas tanks, ballistic missiles, submarines, and surface combatants would be considered offensive even to the casual observer, air *defense* weapons are not.¹⁴ It has been argued that even Iraq has legitimate needs for advanced air defense weapons. Considering that the

¹³Why and how nations arm themselves are questions of great importance for obvious reasons. For an excellent study on the relationship between military capability and development in Third World countries, see the study *Born Arming* by Alden Mullins [Ref. 10].

¹⁴The reader must be reminded that this is why these weapons are bought and sold with less fanfare than "offensive" type weapons. Yet as has been mentioned previously air defense aircraft usually have a dual capability. And, these weapons have been used in air defense against U.S. and allied forces fighting in the Third World.

Israelis have destroyed an Iraqi nuclear reactor once, and have threatened to do so again, it is of little wonder that the Iraqis have procured so much equipment. Iraq has a right to its sovereignty too.¹⁵

The motivation for acquiring air defense weapons and other types of arms has also manifested itself in the form of arms production. The overriding objective of Third World arms production is the reduction of dependence on a foreign supplier. Suppliers have a tendency to be unreliable and unpredictable when situations in a region or in the world change. Another important reason for indigenous production is economics. The technology gained through offsets and licensing, and the money saved by indigenous production are typically held aloft as reasons for production, but their actual value to a Third World nation are dubious at best. Perhaps a more probable, yet less quantifiable reason for domestic arms production is status. The status associated with the production of weapons domestically is a very real concern to Third World nations [Ref 18: pp. 507-530]. These different motivations all reflect on the ultimate goal of protecting ones sovereignty. If a nation cannot depend on a reliable source for defensive weapons, then there must be an attempt to produce them at home.

Armsimportation and production may impede the development of Third World nations. But more importantly, rather than protect sovereignty,

¹⁵Another excellent example of top-of-the-line air defense equipment is Saudi Arabia. While the Saudis have good military equipment in general, their air defense equipment is state-of-the-art. This is because of their most valuable asset, oil, and thus their way of life, is most vulnerable from the air. See Table V and [Ref. 4].

these weapons lead to regional instability.¹⁶ The direct foreign exchange costs for imports, and the direct investment costs for production typically draw funds away from more urgently needed areas such as medicine and education. These costs are then followed by the requirements for infrastructure, training, and manpower that are needed to maintain these weapons. This creates a dilemma for arms supplying nations. On the one hand, a world of sovereign states permits self defense. But, considering the overall cost of arms on Third World societies and regional stability, this must be balanced with a prudent policy which minimizes the negative consequences to both supplier and recipient. It seems clear that from the demand side of the equation, states will continue to push for the most advanced air defense systems. This means that it is the suppliers who must make the appropriate policy choices.

B. THE SUPPLIERS

Having briefly examined the rationale for demand on the part of developing countries, we now turn to the suppliers. This section examines the recent export trends of the major suppliers, and which nations will be in position to continue high technology air defense exports in the future. The second tier suppliers are also addressed, along with the possible emergence of new suppliers. The most notable of the second tier suppliers are Brazil and China. The emergence of Japan as a possible supplier will also be discussed.

¹⁶In a study of more than 1,000 militarized disputes since 1816, some leading to war and others not, it was discovered that a supply of weapons doesn't inevitably lead to war, but it increases the probability dramatically. Nations do not go to war without sufficient weapons [Ref. 19:p. 28].

As the world undergoes a diffusion of power--political, economic, and military--from the industrialized, developed states to the Third World and so-called Fourth World (poor and without oil), the acquisition of air defense weapons, often sophisticated and usually in far greater quantities than the recipient state previously had, is a critical element of that diffusion. [Ref. 17: p. 4] This diffusion is also seen in the actual production of arms. Evidence indicates that there is a move towards multinational development and multinational production of military equipment. Offsets and the exporting of military production and technology will contribute to the internationalization and diffusion of arms production [Ref. 20:p. 16]. These factors as well as many others will effect suppliers and advanced air defense weapons export trends. Historically, for the major suppliers, there have been three main justifications for the sale of conventional arms: influence and leverage, security and stability, and economic benefit [Ref. 17:p. 14].

The Soviet Union and the United States continue to be the world's dominant suppliers of conventional arms. In 1989 the USSR and the U.S. controlled 37 and 34 per cent of the global arms market, and an extremely large percentage of the Third World market [Ref. 16:p. 221]. Following the USSR and the U.S. in total sales are France, the United Kingdom, China, and West Germany, whose shares of the market are substantially below those of the two super powers. An interesting point is the fact that when considering sales to the industrial world alone, China becomes much less a of factor. The major suppliers of interest in this thesis are the Soviet Union, the United States, and Western Europe, since as shown in Table III, they produce and export the advanced air defense systems.

As Table V shows, these same nations are also the leading exporters of all major conventional weapons to the Third World.

TABLE V. THE LEADING EXPORTERS OF MAJOR WEAPONS, 1985-89

Exporters	1985	1986	1987	1988	1989	1985-1989
USSR	8563	10327	10759	8238	8515	46402
U.S.	4024	4925	6270	3649	2528	21397
France	3588	3355	2518	1312	1527	12299
China	1017	1193	1960	1781	718	6669
UK	903	1020	1530	1165	993	5610
FRG	395	649	252	480	149	1925
Italy	578	398	319	360	30	1685
Netherlands	38	132	172	134	491	338
Brazil	172	134	491	338	182	1318
Czechoslovakia	124	124	198	176	287	908
Sweden	35	141	298	240	134	847
Spain	139	185	160	206	143	847
Egypt	124	159	194	232	62	771
North Korea	95	48	98	123	-	364
others	621	528	587	437	371	2547
TOTAL	621	528	587	437	371	2547

* Aggregate exports. Figures in U.S. \$millions at constant 1985 prices. Source [Ref. 16].

1. The Soviet Union

Arms sales have traditionally played a greater role in Soviet policy toward Third World nations than they have in U.S. policy. Yet, the USSR has had a total of only twenty Third World clients for major systems since 1970. And a far smaller group accounted for over 75% of all exports: Angola, India, Iraq, Libya, and Syria. Generally, the reason is that the Western nations have

more to offer developing nations than just arms. Until this past decade these arms sales have been dominated by ideological and foreign concerns, but recently the USSR has expanded sales to the Third World for purely economic reasons. Countries like Jordan, Kuwait, and Peru, with no ideological links, have become important new recipients. The USSR appears to be expanding these sales as a new means to acquire hard currency. [Ref. 21:p. 20] Of course solid assessments of Soviet arms exports are complicated by the fact that many transfers become public knowledge only when the deliveries begin. Another complicating factor in this equation is the economic reforms of President Mikhail Gorbachev and the effect they will have on the civilian and military industrial base.

When looking at developments in the Soviet Union, it must be remembered that arms exports constitute a very large portion of overall production. Arms sales to the Third World are equivalent to over a third of production in many key industries. These sales help maintain a large production line which drives Soviet unit costs down and helps preserve a wartime surge capability. Between 1978 and 1987, Soviet exports of jet combat aircraft to the Third World were equivalent to 36% of total Soviet production. Some studies suggest that these exports at times bring in close to 50% of the total Soviet hard currency earnings. [Ref 21:p. 20]

Over the years the USSR has also maintained production lines of older equipment exclusively for export. Systems such as the MIG-21 and SA-2 Guideline SAM were solely for export. But, by the early 1980s Third World nations were not satisfied with less than up to date equipment. The USSR has always been hesitant to do this, yet they will need to in order to keep their

market share. One method they use to deal with this dilemma is to sell top of the line equipment with less advanced features. For example, the export version of the MIG-29 uses MIG-23 radar rather than the state of the art RP-29 Slot Back. [Ref 21:p. 20]

One major question to be addressed is how Soviet economic reform will effect their arms transfers to the Third World. This question is vital when assessing future U.S. plans. President Gorbachev has stated that the Soviet Union "was in favor of demilitarizing international relations" and he has proposed "stopping any supplies of arms to all belligerents" in Afghanistan [Ref. 22:p. 199]. Yet, a major cutback in arms sales is unlikely to occur. In fact even as the USSR is withdrawing from their Third World conflicts, arms sales have continued at a normal pace to traditional clients such as Iraq, Syria, and Libya,¹⁷ and have even increased to Afghanistan since their withdrawal [Ref. 20:p. 32]. According to Paul Mann writing in *Aviation Week and Space Technology*, "perestroika" will more likely have the following effects on the Soviet military: the pursuit of a wider economic base of R&D and plant modernization, lengthen procurement schedules, shift military managers and engineers to the civilian sector, reorganize and marginally reduce the size of Soviet divisions, increase the friction between civilian and military sectors, and a heightened emphasis on weapons sales to generate scarce hard currency in order to implement these reforms. [Ref. 23:p. 19]

¹⁷According to newspaper and television reports, the Soviets are upholding the United Nations arms embargo against Iraq for the time being. But, Soviet technical assistants are still in Iraq.

While President Gorbachev may find arms exports less attractive politically in the world forum, he needs the currency to bolster his economy. It is doubtful that he will find weapons sales "immoral" as President Havel did in Czechoslovakia.¹⁸ And, air defense weapons are very easy to legitimize to world opinion. Soviet arms sales will continue as long as there are markets, but more sophisticated weapons will be the preferred order of the day. Yet, their market share may erode because their equipment has not always performed as well as Western equipment.¹⁹ The USSR is also not as advanced in advanced aerospace technologies. When a recipient goes shopping for individual pieces of high technology equipment they usually turn to the West. The Soviet technological level is typically lower and their advanced equipment is less desirable in the Third World.

During the period 1982-1989, the USSR delivered 1,955 supersonic combat aircraft and 26,380 SAMs to the developing nations. This is almost four times as many aircraft and seven times as many missiles as the U.S. delivered during the same period [Ref. 25:p. 125]. Of course not all of these air defense systems are state of the art, but the presence of these systems in the

¹⁸In addition to the scores of interviews and new reports on the playwright president, *The New York Times* (January 25, 1990, p. A-10) reports that Czechoslovakia will simply end arms sales. Quoting Foreign Minister Jiri Dienstbier, "Czechoslovakia will simply end its trade in arms without taking into account what the pragmatists will say. The trade will stop even with the large blow to state coffers, and even though the recipients can get them elsewhere."

¹⁹Matthew M. Hurley addresses some of the deficiencies in the quality and capability of Soviet-made equipment in his article, "The Bekaa Valley Air Battle, June 1982: Lessons Mislearned?" (*Airpower Journal*, Winter 1989, pp. 60-70). Also see [Ref. 24:p. 522].

recipient nations' inventories gives the USSR an added foothold. The parts and training eventually lead to updated equipment and reliance on the USSR. Combined with the existing substantial presence, arms control and CFE cuts in Europe will increase the USSR position within these nations. The USSR has always been reluctant to scrap equipment and with "peace" in Europe, they may virtually have a yard sale of excess equipment.²⁰ For the foreseeable future the USSR will continue to hold a substantial portion of the air defense export market due to past practices. And, they will attempt to increase their market share of high technology air defense systems with modern equipment like the MIG-29. Also, as Gorbachev improves his hold on power, he will further legitimize the sale of air defense equipment, and sales of other advanced equipment, like the SU-27, may eventually come to pass.

2. The United States

The U.S. policy on arms sales is based primarily on political and foreign policy rationales. Because of the domestic political aspect of arms sales, it is difficult to predict long term American export policies. A fairly recent example of shifting policies was the curtailing of arms sales during President Carter's administration. Carter believed that arms sales were "contrary to our long standing beliefs and principles" [Ref. 17:p. 45]. Yet, even

²⁰The large market for arms helps the Soviet armed forces turn over old inventory and modernize the force structure without resorting to outright scrapping of old equipment [Ref. 21:p. 20]. *The New York Times*, (November 15, 1990) reported the Soviets were moving equipment east of the Ural Mountains so it would not have to be scrapped as part of CFE. This equipment could be sold, stored, or used as replacements.

with Carter's misgivings about arms sales, the amount of arms sold increased throughout his administration. Indeed, it could be said that the U.S. has no coherent long term arms sales policy at all.

For all the changes and shifts in American policy, the U.S. still maintains a strong second place behind the USSR in sales to the Third World. Between 1985-89, the U.S. sold over \$21 billion worth of major weapons systems to the Third World. Though the U.S. has sold weapons to over 58 Third World nations since 1985, approximately 70% of the sales have gone to Egypt, Israel, Pakistan, Saudi Arabia, South Korea, Taiwan, Thailand, and Brazil in recent years [Ref. 16:p. 220-224]. Each of these nations, except Saudi Arabia, were producing weapons other than just ammunition and small arms by the early 1980s [Ref. 26:p. 16]. This may well effect the total amount of U.S. arms sales abroad, yet before these nations become serious producers they will have many problems to overcome.

In spite of declining world wide arms exports, and a decreasing Third World market share, the U.S. will continue to dominate the high technology arms market. (An integrated Western Europe in 1992 may prove to be the exception--see next section) The U.S. is among the world leaders if not the world leader in many advanced technologies: aerospace, airframes, engines, space/satellite, carbon fibers, ceramics, high speed integrated circuitry, stealth, and terminal missile defense technology. These technologies are supported by the worlds largest military R&D budget [Ref. 24:p. 520]. With this in mind the U.S. will continue to be the leading exporter of high technology weapons for the near future.

Even in a changing and shrinking arms market the U.S. will be able to continue and hold a solid market share because of its own domestic needs and its ability to influence foreign recipients and suppliers.²¹ In most nations, domestic production depends to a large extent on substantial foreign sales, where as according to Stephanie G. Neuman, in the U.S. only 5 to 15 percent of overall defense production is exported.²² With an annual procurement budget of approximately \$80 billion, the U.S. is relatively insulated from a declining world market in arms sales [Ref. 24:p. 521]. Arms sales are an instrument of foreign policy, but sales abroad rarely influence arms production at home. Of course, depending on the size of the defense in these times of change, defense contractors may need foreign sales to keep down per unit costs and to keep open certain weapon production lines.

The main concern here is whether the U.S. will continue to be a major supplier of air defense weapons. The answer at this stage is obvious. The U.S. will continue to export large quantities of arms and will continue to

²¹"For example, the Swiss decision to buy American F/A-18s rather than Mirage 2000s reportedly was due not just to technical and operational considerations but also to expectations of offsets" [Ref. 24:p. 521]. This sale has recently been put on hold.

²²Of course this overall figure does not apply to air defense equipment specifically. According to *Air International* (November, 1987, p. 217), 2,500 F-16s are currently operational in 15 countries. This number is likely to increase to 4,400 and 17 countries before the production run is over. This is well over the 5 to 15 percent figure given by Neuman. But, the U.S. is generally in a better overall position than most air defense producers.

dominate the high technology market, including air defense weapons.²³ Budget and defense cuts may even increase the amount of exported arms, but being the nation with the most desirable type of high technology arms will be enough to maintain a large portion of the export market. During the period 1983-1987, the U.S. delivered 435 supersonic combat aircraft and 2,114 SAMs [Ref. 25:p. 125]. These numbers pale in comparison to Soviet figures, but most of the U.S. deliveries are high technology weapons and with the current world wide demand for advanced air defense systems the U.S. is in a good position to capitalize on this trend.

The U.S. has sold tremendous amount of air defense equipment under the auspices of "defensive sufficiency". But not all of these sales may be in the national security interest of the U.S.. Certain lucrative markets such as Iraq and Iran have been avoided recently, and with good reason, given past experience with countries such as Vietnam and Iran. U.S. forces have had to plan contingencies against these nations, while also planning to fight against U.S. supplied weapons. U.S. forces typically plan for battle against Soviet made weapons. Western weapons are much more difficult to defend against. The U.S. has already sold Saudi Arabia over 40 F-15s with more M-1A1 tanks and F-15 jets on the way. Will the U.S. be as willing to protect the oil fields

²³The European "yard sale" will not be limited to the USSR. The article "The Adverse Effect of Disarmament," (see *Defense & Armament Heracles International*, April 1990, pp. 8-9) discusses Moroccan and Egyptian interest in M-60 tanks and F-16 fighters that are to be pulled out of Europe. There is talk of these units being sold for the price of transportation only.

given these transfers?²⁴ As the sale of U.S. high technology air defense equipment continues, it is only a matter of time until U.S. troops actually confront these weapons in combat.

3. Western Europe--EEC 1992.

France, the Federal Republic of Germany, and the United Kingdom are the largest weapons exporters in Europe and are grouped here because of their similarities as arms exporters when compared to the superpowers or Third World producers. Each of these nations sell weapons that are in the high technology range of the export spectrum.²⁵

France is the only non-superpower to develop, design, and produce its own complete range of high technology conventional arms. The FRG and UK do this to a lesser extent than the French, and offset any deficiencies with joint arms production ventures (Tornado) and imports from the U.S.. With limited domestic demand the per unit costs of these advanced systems continues to grow. This says nothing about the "price of entry" into a new weapon system with new materials, processes, design approach, manufacturing methods, and operational technique. On the average the cost of ever more complex combat aircraft have increased by a factor of 10 every 18 years. Of course inflation plays a part in this price increase, but the ever more complex technologies are the major reason for driving the price up [Ref. 27:p.

²⁴42 FA-18 Hornets have been sold to Kuwait. These aircraft will obviously not be delivered for quite a while. If they had been, the U.S. may be threatened with these as well as French and Soviet state-of-the-art aircraft [Ref. 16:p. 285].

²⁵Sweden will not be addressed here, but its lone high technology export system, updated RBS-70 SAMs, could certainly be considered advanced.

12]. Because these nations are aware that they are unable to continue autonomous defense production they strive to increase their foreign arms sales. It has been estimated that well over half of Dassault's family of Mirage jet fighters have been exported, sometimes to the detriment of the French Air Force [Ref. 28:pp. 211-212]. With absorption problems and, until recently, decreasing oil prices, the typical recipient of European arms has decreased its imports. This is causing the European suppliers to search for new markets. Even if these new markets are found it is unlikely that Western European nations will be able to maintain autonomous production capabilities without more cooperation among themselves.

In general terms defense trade is excluded from the European Community (EC) trade by article 223 of the Treaty of Rome, ensuring that national security remains a domestic concern. Yet because the numerous problems of autonomous production have been recognized by the Western allies, two other groups have been formed to tackle defense problems: the Independent European Programme Group (IEPG) and the Western European Union (WEU). The IEPG was formed to promote more European collaboration in defense equipment, while the WEU was formed as a way for Europe to shape defense policy without the participation of the United States. While these groups enhance cooperation, there is as yet no formal document to merge European defense industry. But, many European companies are already seeking cross-border alliances through mergers, acquisitions and other

measures to take advantage of a European wide market. Even U.S. companies are actively trying to team with European companies before 1992.²⁶

It seems that if the Western Europeans can get past the "nationalism" of autonomous defense production, a single European defense industry/market will be a self-fulfilling prophecy. If collaboration and cooperation do not increase, their only alternative is to rely totally on the U.S. for high technology state of the art weapons. This would be unacceptable to the Europeans. With this in mind it is likely that after EC-92, exports will probably continue at the combined current rate due to European reliability as suppliers and the desirability of high quality/technology systems. This most certainly insures that advanced air defense systems made in Europe will continue to proliferate in the Third World.

4. Other Suppliers

When addressing the prominence of secondary suppliers of major weapon systems one must look into Third World arms production. The production of major weapons systems is still concentrated among relatively few Third World nations. Cooperative ventures and licensed production account for a substantial portion of these major weapons systems being developed in the Third World. Third World producers account for approximately 20 percent of the world's arms market [Ref. 29:p. 72]. Though 20 percent of the arms market may seem to be a substantial portion, this figure is divided among many nations. In conjunction with this figure is the

²⁶For an excellent study that highlights the internationalizing of the West European defense industrial base, see Andrew Moravcsik's "The European Armaments Industry at the Crossroads," *Survival*, January/February 1990.

fact that most of these systems are in the low to medium technology range. While the need for high technology weapons has certainly been demonstrated in recent conflicts, and are in fact in demand, simple weapons in large quantities are also in high demand. This is the market where most Third World nations compete. There are many reasons why Third World nations decide to produce arms--historic geographic rivalries, political decisions, military necessity, economics, or national pride. But, the overriding reason that prevents successful high technology or long term production is economic. Economic limitations such as infrastructure, education, and manpower, along with the shrinking international arms market prevent most nations from gaining a substantial foothold. Few nations have the potential to enter this high technology export group. Three who have attempted to do so are China, Brazil, and Israel.

a. China

As Table I clearly shows, the Chinese transferred a substantial amount of arms throughout the 1980s. Between 1980-1987, 74 percent of China's arms transfers agreements were with Iran and Iraq [Ref. 30:pp 21-23]. This windfall has dwindled due to a resolution of the conflict. Most weapons exported by China are modified clones of older Soviet weapons. Though these clones are effective, specifically in an Iran-Iraq type war, they are 1960s vintage in the low or medium technology range. Through these weapons sales China has been able to finance its own future weapons programs. Sharing technology and buying relatively small amounts of military equipment from Western Europe, Australia, the U.S., and most extensively from Israel, has enabled the Chinese to increase the technological level of

their equipment. As of yet, though, the Chinese do not have the capability to export high technology air defense weapons. But they have established a niche in the Third World with large numbers of simple, inexpensive, yet effective weapons.²⁷

b. Brazil

Brazil has become a prominent second tier arms supplier in the world, and has garnered advanced technology as a result of arms sales, co-production, and licensed production. Through its arms industry Brazil has gained enormous access to advanced technology from many nations, and in fact produces components and high technology products for developed nations such as France, the United Kingdom, and the U.S.. For all the tremendous strides in recent years, Brazil still has a long way to go. Financing problems, a huge foreign debt, and a country that is simultaneously poverty stricken and industrialized has kept Brazil second tier. While Brazil has excelled in areas such as armored vehicles, and is in fact the sixth largest aircraft producer in the world, their air defense products are not yet in the high technology range. Currently, a joint Italo-Brazilian aircraft, the AMX, is being built. The AMX is a subsonic, dual mission aircraft that will be the most advanced aircraft made in South America. [Ref. 31:pp. 1676-1677] While the AMX will be capable, it will not compete with the latest generation of

²⁷The Chinese Silkworm missile was a factor in the Persian Gulf "Tanker War," and it is a relatively "old" and low tech cruise missile. The Chinese see themselves as "important" and as a "champion" of many Third World countries, and this is partially manifested by their arms trade practices around the world. A complete study of the Chinese arms trade can be found in *China and the Arms Trade* by Anne Gilks and Gerald Segal.

advanced aircraft. Brazil is a reliable supplier with a enormous potential to join the major supplier ranks. Yet, there are still many limitations. Major exports still require imported components, the world economy effects the Brazilian economy tremendously, and the resolution of the Iraq-Iran conflict reduces the capital available to keep Brazil on the leading edge.²⁸

c. Israel

Israel is an important second tier supplier who has recently faced more competition from emerging arms suppliers such as Brazil. Because of its need to insure the survival of the Israeli state, and a certain amount of independence, Israel developed its own high technology arms production capability. To support arms production, Israel has relied on a substantial number of exports. Exports can be divided into five categories: services, re-exports, local manufactures, technology, and offsets [Ref. 26:p. 182]. Other than re-exporting aircraft such as the Mirage III and a few sales of the Israeli built Kfir, air defense exports are not extensive at all. The danger posed by Israel is in the export of technology. The Israelis have developed electronics equipment at a level of technological advancement well ahead of many industrial countries [Ref. 16:p. 237].²⁹ Also, having developed the Lavi

²⁸For a complete study on the Brazilian defense industry see the two-part series in *International Defense Review* (August 1989 and December 1989) entitled "The Brazilian Defense Industry," by Rene Luria. Also, [Ref. 26] has an entire chapter on Brazil by P. Lock entitled "Brazil: Arms for Export."

²⁹The advanced Israeli electronics industry has been instrumental in maintaining their air defense superiority in a volatile region. This advanced indigenous capability was a key in their victory over Syria in 1982. See "The Bekaa Valley Air Battle, June 1982: Lessons Mislarned?" (*Airpower Journal*, Winter 1989, pp. 63-3). For a complete listing of Israeli military electronics

aircraft, which is in the advanced technology range, and through operating the F-15/16, the Israelis are capable helping some second tier nations such as China develop a first line jet aircraft. Israel's defense industry is economically limited in size and thus cannot produce all of the advanced equipment it is capable of developing. The Lavi is an example. But Israel can export its technology to other Third World nations.

d. Japan

The Japanese need to be addressed because of their unique position in the industrial world. Their "special status" is due to their self imposed arms transfer restrictions while being able to produce some of the most technologically advanced equipment in the world. The United States and Japan have the two largest, most technologically advanced economies in the world and have become intrinsically dependent upon the other. Their trade comprises 35% of the world total. The United States consumes 30% of Japan's total foreign trade, and is the recipient of 46% of Japan's direct foreign investment [Ref. 32:pp. 46-49]. This unique relationship has enabled the Japanese to pursue a very ambitious and successful economic plan. Japanese economic success is not limited to the civilian sector, Mitsubishi and Kawasaki Heavy Industries derived 21.3% and 19.6% of total company sales from defense in 1988. And while the U.S. is becoming more dependent on Japanese components, the Japanese are becoming less dependent on U.S. technology. The Japanese currently make their own surface naval combatants, armored vehicles, and F-1 fighter. Also,

programmes, see *Jane's Military Communications 1989* and *Jane's Radar and Electronic Warfare 1989-90*.

they produce the F-15 aircraft, and the HAWK and Patriot surface to air missile under license.³⁰ The Japanese also maneuvered to develop the FSX indigenously at home, but the Toshiba incident weakened their position [Ref. 33:pp. 31-35]. Currently, based on 1990 SIPRI figures, the Japanese imported over \$3 billion worth of military equipment in 1989 alone, and exported very little. Yet it seems that the Japanese are positioning themselves to be able to export high technology equipment in a short time if their government changes current military export policy.³¹ The Japanese could certainly rival the U.S. and Europeans in any of the high technology air defense fields if they choose to and if they are willing to make the enormous investment required.

C. SUMMARY

The three main justifications for the export of conventional arms: influence and leverage, security and stability, and economics will continue to dominate the world arena. These justifications will shift in relative importance to individual suppliers, but in general they will continue to hold

³⁰The Japanese do not yet produce any first line air defense equipment on their own. All of their high quality equipment is currently built under U.S. license. For a complete report on the Japanese arms industry see "Japan: Evolution of the Arms Merchant," by Kevin Novak (prepared for Professor Laurance NS 4250 Naval Postgraduate School, March 1988) and "Japan: Arms Exporter for the 21st Century," by Duane C. Dick (prepared for the California Seminar on International Security and Foreign Policy, University of California Institute on Global Conflict and Cooperation, February 1988).

³¹Industry has continually pressured the government to allow the export of items not strictly arms. Dual use items such as the V-107 helicopters and the YS-11 aircraft have been exported to various military forces around the world [Ref. 10:p. 37].

true. The fluctuating foreign policy of the USSR will see them rely more on high technology sales for almost purely economic reasons in the near future. The West Europeans will slowly evolve into more unified producers with ever more extensive collaboration between borders to maintain their domestic base and conserve the economic resources. The U.S. will continue to lead in high technology exports for a variety of all three reasons, yet change will also effect the U.S.. And, the Japanese certainly have the potential and will probably be entering the export market in the next 10 years.

The arms trade is in transition, becoming more complex and varied than in the past. Defense budgets are getting tight the world over, weapons are getting more complex and costly, R&D costs are growing tremendously, and the numbers of weapons produced is declining. These factors are affecting industries everywhere, including the U.S. To ease these skyrocketing costs, international cooperation, consortiums, co-production, licensing, and foreign investment into industries will be more commonplace [Ref. 24:p. 527]. It is inevitable that arms sales will accompany these changes as a means to recover investment, lower costs, and make a profit. Unfortunately the effects of these sales are not always realized until well after the fact. Recently, according to *SIPRI*, even as exports to the Middle East arms market have declined, there has been a shift in arms sales toward South Asia.

Accepting the premise that major suppliers will continue to export advanced air defense capability, and given the fact that significant capability already exists, the next logical step is to examine the effect this proliferation will have on the U.S. Navy's missions. The following section will outline

the four naval missions and discuss the implications proliferation will have on them.

IV. IMPLICATIONS OF AIR DEFENSE PROLIFERATION FOR NAVAL MISSIONS

To address the impact and implications of air defense weapons proliferation, one must look at the four specific U.S. Navy missions. Without arguing definitions or degree, the U.S. is considered a "maritime" nation by most. Because of this the U.S. must maintain unrestricted access to the world's oceans to protect its three global interests; economic well-being, national security, and world order. To protect these interests in a dynamic world U.S. leaders have turned to the Navy to implement policy. The Department of the Navy maintains approximately 100 ships and 33% of its marine force deployed on day to day operations outside the U.S. in support of the national objectives.³² These forces, according to Barry M. Blechman and Stephen S. Kaplan in their book *Force Without War*, were used in 177 of 215 crises between 1946 and 1975. This is more than four out of every five incidents [Ref. 34:p. 38]. The choice of the navy to protect national interests is obviously due to the flexibility of aircraft carrier battle groups, submarines, and amphibious forces. Their short reaction time, staying power, the ability to be withdrawn quickly, and their non-infringement upon another's sovereignty enable these forces to contain conflicts, limit escalation, and deter further aggression. With this in mind the navy is required to carry out four

³²These figures represent the "normal" forward presence of naval forces, and are considerably lower than current figures due to the Iraq-Kuwait crisis.

distinct missions: sea control, strategic sealift, power projection, and strategic deterrence [Ref. 15:p.14].

A. SEA CONTROL

Sea control according to NWP-1A:

"is the fundamental function of the U.S. Navy and connotes control of designated sea areas and the *associated air space* and underwater volume. It does not imply simultaneous control of all the earth's ocean area, but is a selective function exercised only when and where needed. Sea control is achieved by the engagement and destruction of hostile aircraft, ships and submarines at sea, or by the deterrence of hostile action through the threat of destruction. Sea control is a requirement for most naval operations. It is required so that the U.S. Navy may have operating areas that are secure for the projection of power, such as carrier strike or amphibious assault, and sea lines of communication (SLOC) that allow the buildup and resupply of allied forces in the theater of operations, and the free flow of strategic resources. Effective sea control also enhances security for the nation's sea-based strategic deterrent." [Ref. 15:p. 15]

Sea control is a relative term and has different meanings during peace and war. In an escalating situation, sea control can go from a forward presence, such as goodwill visits, to freedom of navigation operations, (FON ops), to military action such as air strikes or amphibious assaults. The "amount" of sea control depends on the level of violence required and the political goals of a given situation. With the proliferation of aircraft, and SAMs to the Third World, control of airspace, once assured, could now be considered precarious at best. It seems sea control can be contested by even small nations out to a distance that is only limited by aircraft range and targeting ability.

Considerable emphasis has recently been put on the proliferation of cruise and ballistic missiles.³³ But, ballistic missiles have yet to be used against naval assets, and cruise missiles have a direct relationship to air defense weapons. During the Falklands War in 1982, the Royal Navy lost the HMS Sheffield and MV Atlantic Conveyor to Argentinean air-launched Exocet cruise missiles [Ref. 35:p. 66]. Both the Exocet and the aircraft that launched it, an A-4, are not state of the art equipment by any measure. The chances of success against the U.S. Navy in that particular environment would be considerably reduced given U.S. Navy equipment; Aegis air defense, the F-14 air superiority fighter, and the E-2C AEW platform. But, given the scenario presented in this paper, the U.S. Navy in the Arabian Sea, the situation changes dramatically. India operates substantial numbers of state of the art air defense equipment which would require the navy to deploy a large number of CVBGs to assure air control in a sea control environment. If air control is assured, the air launched cruise missile threat diminishes greatly. Sea control is not only a mission itself, it also directly relates to the other navy missions.

B. STRATEGIC SEALIFT

Strategic sealift is the second naval mission which relies on effective sea control/air control to safely be completed. Whether the situation is a

³³In addition to scores of newspaper articles and journal reports on the subject of missile proliferation, other studies include: *Ballistic and Cruise Missile Proliferation in the Third World* (Hearing before the U.S. Senate Armed Services Committee, 2 May 1989); Aaron Karp's "Ballistic Missile Proliferation in the Third World," (*SIPRI Yearbook 1989*); [Ref. 15]; and [Ref. 35].

NATO/Warsaw conflict in Europe, or the escort of merchant shipping and tankers in regional hot spots, air superiority is essential. The very nature of this mission, slow escorted merchants and fixed position straits and ports, enable many Third World nations to threaten its successful completion.

While at sea the air threat from regional Third World nations would be considered minimal. Unlike the Soviet Union, Third World nations do not have the ability to target ships on the open seas, nor do these nations have the capability to operate their limited numbers of carriers and cruisers away from home ports for an extended time. It is only when ships are close to shore and can be targeted with human spotters, or when they operate in a confined or obvious areas, that the threat from the air would be dangerous. As sealift units approach shore facilities or fixed position straits, the specter of danger increases and air superiority is a must. With the targeting problem over, the Third World nation need only mass enough firepower to attack the facility or ship. In the scenario presented, the port facilities at Karachi are well within the range of India's MIG-29s and Mirage 2000s. With this capability India could conceivably control the skies over Pakistan unless an enormous U.S. effort was made to counter this. With superior air defense aircraft, India could attack resupply ships at will. The nature of this threat also has tremendous implications if the sea lift situation is reversed. As oil tankers pass through straits or travel on known merchant routes, they are easy targets for an enemy intent on attacking. If a potential threat is identified, and if the air defense capabilities associated with that threat are substantial, then U.S. air power is essential for merchant protection. Strategically, the interdiction of important merchants going to or coming

from American allies could seriously effect the economy of the U.S. or the sovereignty her allies. Air control is imperative to the safe completion of this mission.

C POWER PROJECTION

The third naval mission, power projection, is comprised of three basic elements: naval shore bombardment, amphibious assaults, and carrier based air strikes. Each of these elements relies on air superiority for effectiveness and mission success. Each of these missions, to a certain degree, has been adversely impacted by the amount of air defense weapons proliferation in various regions in the world.

Naval shore bombardment has been an effective weapon in low to medium threat environments. But, even the longest range guns onboard battleships have the relatively short range of 23 miles. This type of range severely limits the Third World regions where this mission can now be safely accomplished. If a Third World nation has the air defense capability to control the air, then the air launched cruise missile threat would be so great as to preclude the use of naval bombardment.

The success or failure of amphibious assaults is a direct result of who commands the air. Marine fixed wing and rotary air to ground units are a potent force for assaulting and establishing beachheads. But, in many regions of the world, they would be met with advanced SAMs of both Western and Soviet design.³⁴ These SAMs would certainly be used in conjunction with

³⁴According to Mark A. King, [Ref. 36:p. 33], Marine Corps doctrine is based on the assumption of air superiority and makes no provision for action

advanced aircraft. Defensive measures against Western SAMs, as mentioned previously, is somewhat limited. Also, while the AV-8B is an excellent aircraft, its air-to-air capability against a fourth generation fighter would be suspect due to its lack of radar and in the fact that it only carries Sidewinder AAMs [Ref. 11:p. 403]. In addition, the only SAM capability currently in the Marine Corps inventory is a limited number of HAWK batteries and the man portable Stinger. As air defense capability in the Third World continues to proliferate, amphibious operations will move further down the threat level ladder. Without a preponderate amount of allied air power, amphibious operations will be limited to low threat environments, or large losses must be expected. This is without even considering the ballistic missile threat that is also out in the Third World.³⁵ When trying to project power ashore, halfway around the world and from the sea, air defense weapons and ballistic missiles can be great equalizers and force multipliers. Controlling the threat emanating from the air is essential for mission success.

Carrier based air strikes is the mantle upon which the navy rests its tactical mission viability. This mission is broken down into two parts; protection of the carrier itself, and survivability of the aircraft performing the strike mission. In the given scenario, the carriers themselves would be

should that assumption prove false. The Marines have "no written doctrine that does not assume air superiority." Unfortunately this the same assumption that has been used in past conflicts such as Vietnam. But, in South Vietnam there was in fact no threat for air defense weapons. This assumption will not hold true in future conflicts.

³⁵For seven excellent scenarios which present the implications of ballistic missile proliferation for the U.S. Navy, see [Ref. 15:pp. 23-58].

relatively safe due to distance and constant movement. But, in a confined strait or waterway, a single CVBG could be overwhelmed by air launched cruise missiles from platforms protected by the advanced fighters of an adversary. Yet, this scenario is limited and restricted to remote regions of the world. The more realistic and probable threat is to the aircraft carrying out strike missions. As shown in the section two, the proliferation of advanced air defense weapons is a world wide problem. Considering the A-6 Intruder is the principle carrier strike weapon and it is very nearly 30 years old, its capability against advanced weapons is becoming limited.³⁶ Contributing to this problem is the fact that the EA-6B EW/ECM platform is designed with Soviet systems in mind. This means that without modifications, U.S. "jamming" of many regional nations' SAMs would be limited. During the recent Iran-Iraq conflict, Iranian I-HAWK SAM batteries were a major concern to tactical aircrew planners. If a conventional strike were carried out against India in the given scenario, the resulting losses would be significant. Not all Third World/Low Intensity conflicts would be as benign as Grenada or Panama.

Currently, Iraq is at the forefront of most naval strike planners minds. While Iraq does not have enough high technology equipment to to defeat 400,000 U.S. troops, they do have SA-13s, SA-14s, and MIG-29s. The Iraqis also have access to captured Kuwaiti I-HAWKs. These air defense weapons will

³⁶The first A-6 flew in April 1960, and the Navy took delivery of its first A-6 in 1963 [Ref. 11:p. 405]

effect strike plans and must be silenced in order to ensure a successful U.S. attack from the air.

D. STRATEGIC DETERRENCE

The confidence in the survivability of U.S. strategic deterrence is unique to the navy SSBN force. Having an assured first or second strike capability should dissuade any rational nation from attacking U.S. forces with a weapon of mass destruction. Yet, this force does little to deter a Third World conflict as the current Iraq-Kuwait crisis shows, and in fact is not normally associated with the Third World. However, as Third World nuclear capability grows, the U.S. may have to readdress some of its own policies in order to deter Third World use of these weapons, or use of these weapons against the U.S.. According to a recent Delphi survey of leading civilian and military experts, naval forces due to their visibility, sustainability, and timeliness of potential response, constituted the most credible Third World deterrent [Ref. 35:p. 84]. This deterrent would more than likely come in the form of the TLAM.³⁷ Where as TLAM are highly survivable, they fly relatively slow and are capable of being intercepted with advanced radar, missiles, and aircraft. As shown, the proliferation of air defense weapons to the Third World has the potential to interfere with the four missions of the U.S. Navy. The navy must realize that these threats exist in certain regions and that they will have a definite impact in the coming years on tactics, training, and the conduct of

³⁷The TAC AIR component of the Navy, A-6, A-7, and A-18, still plan and practice for the use of tactical nuclear weapons, though it is doubtful that they would be used if TLAM/C were available.

combat operations. Today most threats in the Third World can still be classified as low to medium, and can be considered limited. As these nations experience growth in their economy, population educational level, etc., their military ability will also increase. Currently many regional nations have the desire, will and the equipment, but until their GNP grows, their training and infrastructure will limit their overall capability. Ignoring this Third World problem or pretending it does not exist will invite defeat for future naval forces.

V. POLICY OPTIONS

Today's world environment bears little resemblance to the bipolar, or Cold War world of just a few short years ago. Gone is the stability and predictability of the Soviet Union and Soviet clients throughout the Third World. In this new multi-polar world, nations are no longer easily restrained by their traditional bloc allies and are more able to act unilaterally. Complicating matters has been the rapid build up of air defense forces in these Third World regions. As shown air defense weapon proliferation is extensive, it will continue for the foreseeable future, and will pose an ever increasing threat to United States and other allied forces operating throughout the world. The implications from this threat require planners to consider different policy options in order to realistically approach this problem in a changing world. Three policy options open to American leaders will be discussed here. First, possible U.S. military responses to the threat will be addressed, second, an adjustment or control of the threat through arms control will be briefly discussed, and third, an adjusting of U.S. interests in the Third World will be put forth.

A. ADJUSTING THE RESPONSE

The United States has a long history of intervention in the Third World when the President deemed U.S. interests where at stake. Recently, U.S. intervention has been used when American forces have had overwhelming superiority in numbers and weapons and could generally be considered low risk. Operations such as the Alpha strike on Lebanon, Grenada, Panama and

the U.S. raid in Libya are examples of low risk ventures. This limited approach is a reflection on the post Vietnam attitude of the military and their reluctance to commit forces without certain criteria being met [Ref. 37:pp.672-673]. These interventions have been in response to perceived provocations or an actual incident that claimed American lives. This type of limited response has been typical in the post Vietnam era.³⁸ But, this retaliatory type response will become more difficult as advanced air defense weapons continue to proliferate throughout the Third World. A new response must be considered that addresses this proliferation and the serious threat these weapons will pose to U.S. forces. Two such responses to be considered are, a "rollback" of air defense weapons in the field, or a preemptive strike on these weapons before they can be used against the U.S. or her allies.³⁹

The common restricting thread between "rollback" and preemptive strikes is that it has not been U.S. policy to act militarily without some provocation.⁴⁰ While a reason for a preemptive strike can always be thought of, it is difficult to justify taking out a nations defensive capability because it may pose a future threat to U.S. forces. While this type of action plays well in

³⁸Post Vietnam response policy, with respect to the Third World, can be described as a U.S. policy of retaliation or response to attacks on U.S. interests or citizens around the world.

³⁹The quintessential "rollback" and preemptive strike were both accomplished by the Israelis. Their air strikes on Syrian SAM positions in the Bekaa Valley and on the Iraqi nuclear power plant show the positive effects of this type of response.

⁴⁰Even hemispheric invasions such as Grenada and Panama had provocations which precipitated military action.

Israel, it not typical of American policy and would not play well at home. At the extreme end of this response would be the "rollback" of substantial forces already in place. Even if a reason or provocation existed to "rollback" certain weapons, will the President, Congress, or public be willing to accept the losses associated with a strike against a well armed Third World nation? Certainly most Americans deplore the Iraqi invasion of Kuwait and support economic sanctions in an effort to drive out the Iraqi invaders. But, this broad support loses its appeal when talk of an offensive "rollback" of the Iraqi forces is mentioned. Substantial losses have always been assumed when the adversary was the Soviet Union, but losing 40,000 men in an attack on Iraq is generally unacceptable to the American people. This example takes into account more than just air defense weapons, yet with advanced air defense systems in many nations and the zero-loss attitude of many Americans, even an smaller scale "rollback" with less loss of life would be difficult to justify in the final accounting.

B. ADJUSTING THE THREAT

The second policy option available to U.S. leaders and planners is an adjustment or control of the air defense threat itself through conventional arms transfer limitations. If a consensus for an appropriate military response cannot be gathered, perhaps the less dangerous method of arms control can be used.

Conventional arms transfer limitations approaches have traveled a long and mixed path with generally unproductive results.⁴¹ As far back as the Middle Ages there were informal agreements among Christian nations not to transfer weapons to the "infidel" Turks [Ref. 17:p. 281]. The most recent attempt at arms limitations were the Conventional Arms Transfer Talks (CATT) between the Soviet Union and the United States. These talks eventually ended in failure, but some progress was made even as many problems were brought out in the open.⁴² A major problem exposed was the difficulty in getting major suppliers to join the talks and then expect them to limit transfers to traditional recipients. Today, the supplier problems are even larger. If the major suppliers agree to limitations, there are now numerous second and third tier suppliers to step in and take their place. And, the economic benefits are starting to play an ever larger role with suppliers as defense cuts raise the unit cost of equipment.

In addition to the supplier end problems, there are numerous problems associated with getting recipients to agree to limit arms imports. To date the only major recipient-initiated multilateral arms limitation attempt is the Ayacucho proposals in South America during the mid 1970s. But, these proposals were extremely limited in that they did not consider the supplier's side, they were not comprehensive, and did not address converting military

⁴¹For a complete study on arms transfer limitations and the Third World, see [Ref. 38].

⁴²The CATT failed mainly due to limited support within the Executive (Carter) branch and the bureaucratic struggle between the State Department and the NSC [Ref. 38:pp. 119-120].

technology and products into civilian products [Ref. 38:p. 180]. Another problem associated with recipient end control is the idea that arms are a sovereign right of every nation. Recipients view supplier restraint as paternalistic and discriminatory, and it is argued that their legitimate defense needs are not taken into account [Ref. 38:p. 6]. It would be difficult to imagine nations such as India and Pakistan, China and Vietnam, North and South Korea, or Israel and Arab nations joining in any type of significant regional arms limitations.

With the end of the Cold War, blossoming super power relations, and new vitality in the United Nations, chances for arms transfer limitations have never been better. One example of cooperation is the missile technology control regime (MTCR). The MTCR is a 1987 agreement among the United States, Canada, Great Britain, France, West Germany, Italy, and Japan which places export controls over two broad categories of technologies: missile systems, subsystems and the means to produce them; and critical components. The agreement applies only to systems capable of carrying 500 kg payloads, with a range of at least 300 km. While the MTCR is a significant achievement, it seems at this point to be a case of "too little too late". There is no monitoring agency and compliance and interpretation are left to the discretion of the individual nation. Perhaps the most blatant example of the regimes weakness is the French. France and Brazil have continued to negotiate missile related rocket engine technology despite U.S. protests. The U.S. has even been involved with controversial technology transfer negotiations. The U.S. continues to discuss transfers of space technology with India. Perhaps more important are the nations which are not part of the

MTCR; China and the USSR. Both nations have significant financial and political stakes in missile-related exports, and are likely to continue their non-participation in MTCR. [Ref 39:pp. 12-13] Another important aspect of technology transfer that is omitted in the agreement involves the hiring of consultants. It is difficult for capitalist Western countries to outlaw the selling of ideas and knowledge by expatriates.⁴³

Overall, the chances for a significant arms transfer limitation treaty ever coming about are extremely poor. Few nations would be willing to limit their sovereignty by allowing a treaty to dictate to them what arms they can sell or buy, especially air "defense" weapons. Experts in the field of conventional arms cannot even agree as to how to go about beginning the arms transfer limitation process, therefore it is doubtful that limitation talks, much less a treaty, will come about in the near future.⁴⁴

C. ADJUSTING THE NATIONAL INTEREST

A great power according to Lord Palmerston has "no permanent friends," "no permanent enemies," only "permanent interests". This often-used quote is tossed around frequently with a naive belief that it is straight forward and simple. Nothing could be further from the truth. It would be difficult if not impossible to define what America's permanent national interests are,

⁴³The details of the MTCR guidelines appear in "Missile Technology Control Regime: Fact Sheet," Department of Defense, April 16, 1987.

⁴⁴Two leading authorities in the field of conventional arms, Andrew J. Pierre and Thomas Ohlson, have differing opinions. Pierre suggests supplier initiated, regionally oriented arms limitations, while Ohlson concludes the initiative must come from the recipient side [Ref. 38:p. 242].

especially with respect to the Third World. To the authors of the United States Constitution, U.S. national security interests were simply "to ensure domestic tranquility and provide for the common defense". However, beginning December 7, 1941 U.S. national interests changed drastically. No longer could the U.S. sit back and watch the world change and then act or intervene at its convenience. The world has now changed again and U.S. national interests must adjust in order for the U.S. to maintain its unique position and standard of living in the world. The U.S. and all the nations of the world are becoming more interdependent on one another in all facets of life. Economics, ecology, and the population of all nations are becoming increasingly intertwined. The future international environment and the scenarios that might be produced are a concern to all. With this new world order and with the proliferation of advanced weapons, the U.S. must clearly define what her national interests are, and be ready to stand together once the President and Congress have committed the nation. If the U.S. maintains a zero-loss attitude, cannot control the proliferation of air defense weapons, or if she can not stand firm while facing advanced weapons, then all credibility and interests within the Third World could be lost.

This section addresses the policy option of adjusting U.S. national interests in the Third World and how a new world order might effect these interests in the future. Beginning with a historical summary of past national interests, this section will address what the vital U.S. national interests are, and what they should be with respect to the Third World.

1. U.S. National Interests--One Historical View

Before addressing U.S. national interests, post 1989-90, a short definition, and a brief synopsis of past U.S. interests must be put forth. National interests may be defined as a "nation's perceived needs and aspirations in relation to other sovereign states constituting its external environment". U.S. national interests are the product of a political process in which the country's elected national leadership arrives at decisions about the importance of specific external events that affect the nation's political, military, and economic well being. The determination of this national interest is influenced by interest groups, bureaucratic structure, and various political factions. But ultimately the President has to make a judgment about the extent to which the national interest is involved in a specific international issue or crisis. [Ref. 40:p. 7] The U.S. has had various changing economic interests, and various unchanging defense of the homeland interests in its history as an independent nation. The U.S. has also had periods in its history where certain basic interests were pursued for relatively long periods of time, independent of politics and special interests. The basic national interests which the U.S. has pursued, to various degrees for great lengths of time for various reasons, since the 1700s are economic well-being, and national security. Each of these interests helps maintain, and relies on to a certain extent, a favorable world order [Ref. 41:p. 8].

a. Economic Interests

In the early and middle years of the Republic the overriding basic interests of the new nation were economic in nature. This economic view could be characterized by a realistic view of the world and an attitude of

self-interest. The founding fathers knew that the young nation was weak and they just wanted to pursue their own "minor" economic interests at the time. This fact is brought out in Washington's farewell address in which he states, "the nation which indulges toward another an habitual hatred or an habitual fondness is in some degree a slave," and with Jefferson's idea of "no entangling alliances" [Ref. 37:p.48]. Obviously this attitude reflects the geographic isolation of the nation, its ideals of individualism, and the prevailing anti-military attitude.

(1) **Isolation.** Geographically the U.S. was isolated from the European powers, and all neighboring countries were relatively weak--both economically and militarily. Working closely with these factors were the Monroe Doctrine and parallel British economic interests. To be left alone to expand seaborne commercial trade assets and to expand westward across the continent were the goals of the "Eastern" and "Southern" interests. These isolationist tendencies reinforced the basic national interest at the time--laissez-faire economics.

(2) **Individualism.** In the United States the individual is supreme. This individualism is part of American culture that also dates back to the revolutionary period. Men like Thomas Jefferson stressed the rights of the individual, and the Bill of Rights explicitly protects certain personal rights. Yet this individualism dealt not only with personal issues, but also corporate issues. By the 1800s America was expanding and industrializing, with her spread out society caring more about wealth and individual freedom than community. The limited liability company, or corporation, developed at this time. Many states issued charters to individuals, which gave them the

right to raise money through public sale of stock to build railways, and telegraph and steamship lines [Ref. 37:p. 94]. Americans were constantly looking for markets throughout the world. The search for markets was heavily concentrated in the Western Hemisphere, yet it was also pushed in other world areas. China and the "open door" is a classic example of this. E. H. Harriman used the open door in attempting to build a railroad in Manchuria. These "individual" business ventures were usually backed up by U.S. policy. Therefore, it seems fairly obvious that individualism was a major part of the basic national interest of economics.

(3) **Anti-Military.** Throughout America's first 100 years the military was typically kept small and played a fairly minor role. Historically, Americans have distrusted the use of military force for the attainment of national objectives [Ref. 42:p. 38]. The American people were not so much anti-military, but rather, impatient and typically against paying the price in men and money. As General George C. Marshall remarked, "a democracy cannot fight a Seven Years War" [Ref. 43:p. 5]. Of course America did use force during this period; the War of 1812, War with Mexico, Civil War, and the Spanish-American War in 1898. These wars were not always brief, but after each the army was reduced to a minor number. By 1820 the army was being reduced from 10,000 to 6,000 men and the navy had a total of only seven ships of the line [Ref. 43:p. 61]. During this period of American history, after the Napoleonic Wars, Europe had a period of relative peace. This European peace helped America maintain her peace. The "Pax Britannia" of the time was very much a British economic imposed peace which coordinated well with American interests--economic prosperity.

It seems that economic well-being certainly had the highest national interest priority for a substantial portion of U.S. history. "Dollar Diplomacy" was important but the U.S. also had important world order interests. These "international" interests may seem to go against isolationism, individualism, and anti-military attitudes. But, in a realistic world, world order interests help keep the international environment stable. A stable world enhances the economic concerns of all involved. The U.S. has typically tried to keep any one major power from getting too strong and thus dominating world markets through military strength. This was done in Europe, Latin America, and the Far East. This was also done to assure hemispheric predominance for the U.S. in economic and military matters. Maintaining a "balance of power" supported U.S. economic national interests [Ref. 44:p. 6]. This beginning portion of American history is unique, the generation that gave us the constitution was the only generation in American history that combined the nation's political leaders and its intellectual leaders in the same people [Ref. 37:p. 39].

If December 7, 1941 is the major turning point for American national interests, then the period between 1898 and 1941 was a transition period. In the aftermath of the Spanish-American war the U.S. became an Imperial power. And, though America remained neutral until 1917, she eventually became involved in World War I. Also, the U.S. was technically neutral in WW II until Dec. 1941, in reality though, she was far from not involved. This was also the point in time when the "open door" policy began to shift from an economic/commercial policy to more of a political/military policy. American policy at the time has been called Wilsonian because of the

idealism and moralism of the time. But these ideas were quickly shattered by WW II.

b. Defense Interests

Throughout World War II and the post war period the basic national interests were pursued, but during this phase of American history the military or defense portion received the greatest emphasis. The national security interest was oriented toward the Soviet Union and Communism. The goal was to stop the spread of communism and Soviet influence through containment. There were many causal factors to solidify the shift in the national interest: the communist coup in Czechoslovakia in 1948, fall of Nationalist China in 1949, the Korean War, Hungary in 1956, the Berlin Blockade, the Cuban Missile Crisis, Czechoslovakia again in 1968, Vietnam, and Afghanistan. It is interesting to note that even after WW II and the events of the late 1940s, the U.S. had initially demobilized to a point where by the start of the Korean War there were only 10 understrength army and 2 understrength marine divisions [Ref. 43:p. 382]. Americans have historically favored a small standing military, yet today the U.S. has a substantial military and a \$300 billion defense budget. The awesome defense investment has certainly protected the U.S. from all military adversaries, and it has helped maintain a fairly favorable world order so as to pursue other interests. When the USSR failed to demobilize after WW II and with other problems throughout the world, usually Soviet inspired, the U.S. maintained and even increased its forward deployed troops throughout the world. Even with these large forward deployed forces, U.S.-Soviet confrontation has been one of politics rather than military force. Confrontation has typically taken place in

the Third World with proxies or with nations supplied with arms by either East or West bloc nations. The U.S. and the USSR have become involved in Third World conflicts, but rarely directly against one another. Both have been content to sell or supply arms to upset the other's political desires. These arms have now become very sophisticated as has the multi-polar world that uses them.

As the U.S. maintained national security and deterrence, with respect to the USSR, as the primary national interest of over the years, its benefits have usually been rewarding. Unfortunately the benefits may have come at the expense of the U.S. national economy. Over the past decade or two the economy has started to show cracks. Certainly the Reagan years brought the "largest peacetime economic expansion" ever, but this was done at the expense of others. These past indicators mask the true picture of a weaker economy. The productive base of the U.S. economy--upon which our standard of living ultimately rests--has been eroded by neglect and underinvestment. The U.S. has lost large parts of its electronics, steel, machine tool, auto, and computer industries to foreign competition. The public sector of the U.S. economy--which is increasingly critical to competing in today's world economy--has also been weakened by underinvestment. Federal support for civilian research and development has been cut. As a result, nearly 70 percent of federal R&D--and 30 percent of all R&D is now devoted to defense. Cuts in federal spending have also hurt the quality of the educational system, causing a large part of society to be functional illiterate and incapable of working in an information based economy. Crime, murder, and drug use are at all time highs; and many roads, bridges, and airports are

in disrepair, and the U.S. is beginning to lag behind competitors in the construction of a modern nationwide telecommunications network. [Ref. 45:p. 43] As the nation slides into a recession, these past deficiencies are starting to come to light. When looking at Tables VI and VII, there are only two areas where federal spending has gone up over the past twelve years--defense spending and interest payments. Another interesting figure is the non-defense discretionary spending. This figure has gone down to the detriment of the U.S. industrial base. Clearly the U.S. spent more on defense in the 1950s and 60s (overall percentage) but she also controlled 40 percent of the world's GNP in 1949 [Ref. 46:p. 18].

It is not the point of this section to support the thesis of Paul Kennedy and to say that America is about to fall.⁴⁵ The point to make is that if the "cold war" is ending, it is appropriate for the U.S. to re-evaluate its interests in the Third World, and decide if it is prepared to face the advanced weapons that have proliferated to these nations. Would it be more advantageous to once again adjust national interests to reflect the post 1989 world? The most obvious example of where to address this adjustment of American national interests is in the Middle East. For Example, one option is

⁴⁵See Paul Kennedy's book, *The Rise and Fall of the Great Powers*. An excellent quote from the epilogue that conveys the overall theme is, "If Great Powers neglect to provide adequate military defenses, they may be unable to respond if a rival Power takes advantage of them; if they spend too much on armaments--or, more usually, upon maintaining at growing cost the military obligations they had assumed in a previous period--they are likely to overstrain themselves.

TABLE VI--OUTLAYS FOR MAJOR SPENDING

Year	National Defense	Entitlements and other Mandatory Spending	Nondefense Discretionary Spending	Net Interest on Debt
	(Billions of Dollars)			
1978	104.5	217.5	124.3	35.4
1980	134.0	278.2	156.6	52.5
1982	185.3	357.5	155.1	85.0
1984	227.4	394.8	165.7	111.1
1986	173.4	455.4	174.1	136.0
1988	290.3	501.2	175.7	151.7
	Percent of Total Outlays			
1978	22.8	47.4	27.1	7.7
1980	22.7	47.1	26.5	8.9
1982	24.8	47.9	20.8	11.4
1984	26.7	46.3	19.5	13.0
1986	27.6	46.0	17.6	13.7
1988	27.3	47.1	16.5	14.3
	Percent of GNP			
1978	4.8	10.0	5.7	1.6
1980	5.0	10.4	5.9	2.0
1982	5.9	11.4	4.9	2.7
1984	6.2	10.7	4.5	3.0
1986	6.5	10.9	4.2	3.2
1988	6.1	10.5	3.7	3.2

*Source [Ref. 47:pp. 33-36].

for the U.S. to work on locating and developing oil reserves, and other economic resources, in its own hemisphere. The U.S. already pays billions on military forces to patrol and protect gulf oil, and billions on foreign assistance

to nations such as Israel, Egypt, and Pakistan to maintain regional stability. And, these are pre-Desert Shield costs which add up to between \$80.00 and \$600.00 a barrel depending on the source.⁴⁶ If the U.S. did adjust its economic and military interests to look closer to home, and develop these hemispheric resources, the need to be involved throughout the Third World would be reduced. But is this adjustment appropriate or possible? Before recommending such a change, a more detailed assessment of U.S. national interests in the Third World is needed.

TABLE VII--FEDERAL DEFICIT AND NET INTEREST PAYMENTS

	Deficit	Net Interest Payments		
Year	\$billions	\$billions	% change	% of federal outlays
1980	-73.8	52.5		8.9
1981	-78.9	68.7	30.9	10.1
1982	-127.9	85.0	23.7	11.4
1983	-207.8	89.8	5.6	11.1
1984	-185.3	111.1	23.7	13.0
1985	-212.3	129.4	16.5	13.7
1986	-221.3	129.4	16.5	13.7
1987	-149.7	138.6	2.7	13.8
1988	-155.1	151.7	9.5	13.3

*Source [Ref. 47:pp. 33-36].

⁴⁶Two articles on the "real" cost of Middle East oil are, "How to Break the Middle East Oil Habit," by Richard Woodbury (*Time*, October 28, 1990), and "The Real Cost of Mideast Oil," by Alan Tonelson and Andrew K. Hurd (*The New York Times*).

2. The Third World--A U.S. Vital Interest?

What should American national interests and priorities be in the post cold war-new world era? With the USSR withdrawing from Europe, dramatically restructuring their military intentions, if not their capabilities, and abandoning many areas of the Third World, what should the American response be?⁴⁷ Some would say that without a Soviet threat the U.S. has no security threat and therefore enormous defense cuts are warranted. Others would argue that the threat has merely shifted from the USSR to the Third World in an unbelievably short time. Proponents of each side of the argument obviously have their own agendas. The key is to identify American interests, if there are any, in these peripheral areas and decide if the military has a role in protecting these interests. Is it in the U.S. national interest to fight a war over Kuwait with Iraq? Is it in the U.S. national interest to protect certain Third World nations from hegemonic regional neighbors? Or, should the U.S. adjust its national interests to reflect a changing world?

Using some general concepts and definitions from Nuechterlein's national interest matrix, an attempt will be made to identify key national interests, and to show where adjustments can be made. There are some areas of the world, "key centers of industrial power," that will always be survival or vital economic and military interests to the U.S. [Ref. 46:p. 10]. These non-

⁴⁷While the USSR may be pulling back, both financially and militarily, from places such as Cuba, Vietnam and Afghanistan, they are still the largest arms supplier to the Third World. And, there are still substantial numbers of Soviet advisors training foreign military units in the use of these weapons--Iraq is a current example.

Third World countries are: Canada, Japan, and Western Europe. The only obvious Third World nation that fits in this category would be Mexico, due to geographic proximity. The importance of these nations is relative and it is not suggested that the U.S. should forward deploy in these areas indefinitely. In the rest of the Third World it is much more difficult to identify vital interests, and these interests can change rapidly. What follows is a brief review of what are commonly put forth as U.S. interests, with an assessment of their importance in the post 1990 world.

a. Raw Materials

Few areas of the Third World have much intrinsic value to the U.S., with the one possible exception being the Persian Gulf oil region. But even this area is debatable. With oil being the possible exception, other natural resources are not as crucial to the U.S. Alarmists often point to alleged U.S. dependence on raw material from Third World nations.⁴⁸ According to this view, the U.S. economy requires access to a variety of critical natural resources like cobalt, chromium, platinum, and manganese. Therefore the U.S. must be prepared to intervene to preserve access to these raw materials.

"Although the U.S. imports a large percentage of its annual consumption of certain raw materials, it does so because foreign suppliers are the least expensive, not because they are the only alternative. The magnitude of a state's imports does not determine its dependence on others; what is important is the cost of replacing existing sources of supply or doing without them entirely. A lengthy embargo is a remote possibility--why would a poor Third World country cut off a

⁴⁸For a complete work concerning U.S. dependence on Third World resources and other U.S. interests in the Third World, see [Ref. 48].

major source of revenue?--and the U.S. can rely upon alternative suppliers, substitutes, and plentiful stockpiles." [Ref. 46:p. 20]

b. Oil

With oil being the one possible exception with respect to vital U.S. interests in the Third World, the region that immediately comes to mind is the Persian Gulf. Of course if the President decides the Persian Gulf is vital, as has been done recently, then the region is vital. Yet, certain points should be brought out about this vital interest. It seems many events of the past have been misunderstood. According to Robert H. Johnson writing in *International Security*, there was no major oil shortage in 1973 and 1979 as consequence of the actions of the oil producers. There was some temporary reduction in world supplies, but the sharp price rise was mainly the consequence of other factors. The price rise was mainly a unique adjustment of prices to changed market realities, and was accelerated by a speculative panic simulated by fears about future suppliers. The gasoline lines at American service stations were the result of U.S. price controls and the effort to manage distribution of supplies by bureaucratic allocation. There were no such lines in other countries where allocation of reduced supplies was left to the market. Both oil shocks, therefore, were less the consequence of reduction in supply than of the impact of external events upon producer price behavior or consumer expectations. [Ref. 49:p. 126] While this oil history is somewhat disheartening, the outlook for the future could be brighter. Although the U.S. now imports almost 50% of its oil needs, a smaller percentage comes from the Middle East now than in the 1970s. Also, the U.S. has substantial oil, natural gas, and coal reserves of its own. (See Table VIII) And, the U.S. now has a Strategic Petroleum Reserve of over 550 million

barrels of oil. Oil is now even more fungible than before and the global market is even larger, making it nearly impossible to deprive a country such as the U.S. of oil. The Persian Gulf nations now have huge world wide assets that can be frozen or seized in a crisis. These developments lessen the U.S. vulnerability to oil interruptions. This is not meant to suggest that the U.S. should be complacent. Rather, it suggests that a clear energy policy could completely free the U.S. from a "vital" interest that is potentially unreliable.

c. Trade

TABLE VIII. ESTIMATED OIL, NATURAL GAS, AND COAL

Natural Gas (Trillions of Cubic Feet)		Oil (Billions of Barrels)	
USSR	1,500	Saudi Arabia	255.0
Iran	500	Iraq	100
Abu Dhabi	183	Kuwait	94.5
Saudi Arabia	181	Iran	92.8
U.S.	165	U.A.E.	92.2
Recoverable Coal Reserves (Million Tons (metric) Coal Equivalent)		Venezuela	58.5
United States	166,950	USSR	58.4
Soviet Union	109,900	Mexico	56.4
China	98,883	U.S.	25.9
Poland	59,600	China	24.0
United Kingdom	45,000		

*** The U.S. has enough natural gas to last 60 years at current consumption rates. The U.S. total daily use of oil is approximately 17.2 million barrels per day.

*Source - [Ref. 50], *Time* magazine, September 24, 1990 and *The Herald*, September 16, 1990

Aside from raw materials and oil, other U.S. interests in the Third World seem insignificant at this time, but do have the potential to grow. The entire Third World produces less than 20 percent of the gross world product and this is scattered over 100 countries. Foreign trade is only

14 percent of U.S. GNP, and nearly two-thirds of all trade is with the industrial world. The entire Third World trade (including OPEC) is only 3.5 percent of U.S. GNP, though trade with the Third World provides over one-third of U.S. imports and exports. [Ref. 46:p. 19] Of course most of these figures are growing and will probably continue to grow. Regional nations such as ASEAN have had impressive growth rates and their interaction with the U.S. will expand.

d. Geopolitics

There is another issue that must be addressed when considering the importance of Third World nations in relation to the U.S. national interest; geopolitics and the loss of control of important waterways and land masses. Yet, if one believes the initial conditions set forth, a diminished Soviet threat, then the major portion of this problem is actually non-existent. A second consideration when considering this problem would be loss of control of a strategic area to a Third World power. Few Third World nations, at this time, have the capability to effect events in these areas, though the number is growing with the proliferation of advanced weapons. The problem actually becomes one of economics. Since the U.S. has few items of strategic value that actually pass through these areas, as shown earlier, then the areas themselves lose value. Certainly there are areas of strategic value, the Caribbean basin is an example, but the overall, geo-political value is less than commonly thought.

e. World Order

The final national interest with debatable value for the U.S. is political-ideological interests. Steven R. David writing in *International*

Security advocates--"Promoting American values in the Third World is and should remain a critical component of U.S. policy. It is important for the U.S. to promote freedom and democracy in the Third World because Americans believe this to be the best way of life. Extending American values enhances American interests." [Ref. 48:p. 81] Certainly a nation with American, democratic, or capitalistic values will enhance U.S. interests. But, this can lead to policy behavior that is hypocritical. Promoting and spreading freedom and democracy looks good in the abstract. Yet, since when are the Emir of Kuwait, the King of Saudi Arabia, and their respective governments free and democratic? A more realistic approach is for the U.S. to support a stable world order while making subtle inroads to more extreme nations. With the USSR bankrupt, and communist ideology totally discredited, the Soviet-U.S. zero sum game is over. The U.S. no longer has to support extreme regimes in order to offset the USSR. There are tremendous opportunities for the U.S. to promote democratic values, but the key is to be straightforward, not hypocritical.

Once again, the intention here is not to advocate Paul Kennedy's thesis or the complete withdrawal of U.S. forces throughout the world. Rather, it is to identify vital U.S. national interests and to see if they can be adjusted without answering to a special interest agenda. There are clear threats to the U.S. national interest in the Third World, and the U.S. should pursue a policy that will protect these interests. When important, or legal treaty bound allies and friends are faced with threats to their political, economic, or social stability, the U.S. should act to stabilize the region with economic or political help. Military power should be used as a last resort due

to its implications, and because the reasons behind Third World conflicts are typically very complicated. Clear threats to the U.S. include the following: illegal drugs both the consumption and trafficking, terrorism against American interests and people, immigration/population explosions, pollution and disease control, world debt, and the proliferation of military capability with negative consequences for U.S. security. Increased interdependence with the Third World and the increasing gap between the "haves" and "have nots" may in the future effect the availability of raw materials for American allies, which may effect the U.S. national interest. This could only happen if the Third World organizes itself in some effective form, and only if the U.S. considers the "health" of its allies a national interest.

Whether or not the the U.S. has national interests in the Third World is dependent on numerous variables. The president, congress, special interests, and the American public all have an input, but the president must make the final decision. What Americans must hope for is a clear headed, truthful presentation and appraisal of the facts upon which a decision should then be based. If the U.S. is unwilling to "pay the price" in lives and money to "rollback" or preemptively take out threatening air defense weapons, and if these weapons transfers cannot be limited or controlled, there is only one option left--adjust interests. With the information presented, it seems U.S. national interests in the Third World could be adjusted to reflect the new

international system.⁴⁹ Without these adjustments, the U.S. will slip into the role of being the world's policeman, a role that is doomed to decline in the face of international economic, political, and military realities.

⁴⁹Attempting to address the numerous adjustments that could be made to American interests in the Third World is beyond the scope of this thesis. The purpose, rather, is to show that there is an air defense weapons transfer problem in the Third World, and that a good policy option to address this problem is adjusting national interests. The current interests that the United States has with respect to the Third World do not have a foundation in pre-Cold War historical analysis.

VI. IS THE U.S. WILLING TO OVERCOME THE PROBLEMS CREATED BY AIR DEFENSE WEAPONS PROLIFERATION IN THE THIRD WORLD?

Unfortunately, in this writer's opinion, many American interests in the Third World are based on shaky foundations and a lack of understanding of what America's interests really should be. And, the proliferation of advanced air defense weapons is not going to disappear anytime soon. But this opinion will not change American policy, therefore, a question must be asked. Is the U.S. willing to overcome the problems associated with the proliferation of advanced weapons when protecting Third World interests?

A. STRUCTURE OF THE NAVY--CAN THE FLEET HANDLE THE JOB?

Today's U.S. Navy has been planned and built with the Soviet Union in mind as the greatest threat. The Reagan administration used the threat of Soviet armed forces to help drive the U.S. Navy force level to 600 ships, 15 carrier battle groups, and 4 battleship surface action groups. This build up was done under the auspices of a NATO conflict and to support the "Maritime Strategy". It is debatable as to whether or not this was the correct force mix to battle the USSR and obviously defense cuts are going to affect numbers of ships. But, a mix of carriers, surface ships, and submarines will still be vital for protecting whatever Third World interests the President deems important. In my view the general structure of the navy built to face the USSR will be effective in regional conflicts.

The carrier should continue to be the center piece of naval operations. Due to its flexibility in all facets of naval warfare, amphibious warfare, and

land attack, the carrier is the weapon for Third World conflict. It seems that as the number of carriers is reduced to the generally accepted number of twelve, naval commitments must also be reduced.⁵⁰ Past naval commitments were generated with the USSR in mind, and have been self imposed. The U.S. currently has few "hard" commitments for the deployment of naval forces [Ref. 52:p. 36]. With reduced European commitments, Third World interests can easily be covered with twelve carriers. Considering eight of these twelve carriers will be Nimitz class, and *if* modernization of aircraft (A-12, NATF, ATSA) continues, most Third World commitments will be manageable for the foreseeable future. To increase the strike/attack capability of these twelve carriers, the typical airwing must be reorganized to accommodate more medium attack aircraft. This plan was put forth in the mid-1980s and needs to be carried through [Ref. 11:p. 375]. Force reductions will also effect the surface and subsurface communities. To adjust for the loss in numbers, the navy will have to increase capability and technology in these units. The navy will no longer be able to afford a high/low mix of surface ships, nor can it afford 100 attack submarines. A middle ground must be found so that surface ships can continue to work with the carriers, convoy escort, interdict drugs, escort oil tankers, and work independently. Submarines must still be able to handle the Soviet threat, as well the 250 submarines spread out among Third World nations [Ref. 53:p. 40]. Exact numbers of surface and subsurface units are beyond the scope of

⁵⁰As reported by Michael Gordon in the *New York Times*, August 2, 1990, the Navy portion of the new national strategy will rely on 12 carriers and reduced commitments [Ref. 51:p. 12].

this paper, but reduced numbers with increased capability are needed with the reduced defense budget.

With the savings produced through reduced numbers, the navy must then emphasize logistics/sustainability and modernization. With the prospect of the U.S. continuing to withdraw from many of its forward bases, logistics and sustainability are vital. The Marine Corps will continue to be the "tip of the U.S. spear," and their amphibious assault capability must be sustainable. As the current Middle East crisis has shown, U.S. sealift capability is straining under the massive buildup.⁵¹ Even though Light Divisions are in vogue, as this current crisis shows, Heavy Divisions are still needed. Luckily this current crisis is not a European scenario. Fast sealift, shipbuilding, and the merchant marine are investments for the future. Modernization is also a key ingredient for future success. As the implications section has shown, proliferation of advanced weapons systems will wreak havoc on all naval missions unless the U.S. navy can maintain the edge with technology. Marines, surface ships, and aircraft will all be meeting their equals in the very near future if aircraft like the A-12 are not developed and produced.

Many opponents of current naval force structure argue that large ships are very vulnerable to anti ship missiles. This may certainly be true with respect to the USSR, but this is not true with respect to Third World yet. Very few nations of the world have the capability or the numbers to overwhelm

⁵¹See "Supply Line," by John Burlage and David S. Steigman (*Navy Times*, December 3, 1990) for an insight into logistics and sustainability.

current navy defenses when they are committed to operating in a known hostile environment. Certainly the numbers and capability of these nations is increasing, but with continued modernization the U.S. Navy can still hold an edge.

B. IS THE U.S. WILLING TO PAY THE PRICE TO PREVAIL IN THIRD WORLD CONFLICT?

There is no easy answer to this question. The American public gets very excited and very supportive when the navy shoots down Libyan MIGs, but the support goes away when hundreds of marines die in Lebanon. But the American people are not to blame, as this reflects American heritage and history. Like it or not Americans are happy when they are winning and nobody is dying, but with a zero-loss attitude it is difficult to sustain a long commitment when reasons are ambiguous or ridiculous. Even during a fairly clear case of self preservation, World War II, there was a substantial anti-war movement. And immediately after the war, American demobilized.

To harness the national will, the commitment of the people is needed. For the people to commit they must be told the truth and the reasons why a particular policy relates to an American interest. Without clear and reasonable objectives, the people's commitment will be tentative at best. To compare Saddam Hussein to Hitler is ridiculous and only will sell for a short time. "Blatant aggression" like Saddam's occurs throughout the world regularly and the U.S. does not send 200,000 troops every time it happens. The public now believes the real battle is oil, and oil for blood will not sell in the long term. Whatever the reasons, the President must be straightforward and candid in order to get the people's support. Some may think this

commitment problem was brought on by the Vietnam experience. But in reality,

"Vietnam was a reaffirmation of the peculiar relationship between the American Army and the American people. The American Army really is a people's Army in the sense that it belongs to the American people who take a jealous and proprietary interest in its involvement. When the Army is committed the American people are committed, when the American people lose their commitment it is futile to try to keep the Army committed. In the final analysis, the American Army is not so much an arm of the Executive Branch as it is an arm of the American people. The Army, therefore, cannot be committed lightly." [Ref. 54:p. 11]

C. SUMMARY

As air defense weapons proliferate throughout the world, and as the world becomes more multi-polar and interdependent, U.S. national interests must be adjusted to reflect this change. U.S. interests cannot be dominated by whatever burning issue threatens the contemporary scene. Before this can happen, clear unbiased arguments must be put forth. Once the national interest is identified, the navy and other military forces must be structured so as to protect these interests. Hopefully these interests will not involve making the U.S. the world guardian of stability. It must also be remembered that military force is not always the answer. As Patrick J. Buchanan has said, "There are lots of things worth fighting for, but an extra 10 cents for a gallon of gas isn't one of them." [Ref. 55:p. 27] The U.S. is now deeply involved in Saudi Arabia and the price of a barrel of crude oil has gone from \$18 to over \$40 a barrel at times, and the U.S. has not fired a shot. What happens if a war does start? What would have happened if the U.S. had not gotten militarily involved? Would the price of oil be as high? It is not worth American lives

when the interests are not clear. With proliferation the cost in lives is going to go up drastically and Americans will not be willing to pay the price. As history shows, the basic interest of economic well-being has typically been at the forefront of U.S. national interests. National security has also been an important national interest for a substantial part of American history. Yet as a result of an overemphasis on defense, America has recently shown signs of being overextended. With the world changing, the U.S. must adjust her national interests to reflect this change. A middle ground needs to be found so that the U.S. can protect its economic interests with a smaller, yet viable military. This must be done while keeping in mind that world order is important to both economic and military interests. World order must be approached with an honest, open minded approach that reflects the changes mentioned.

When the national interest is finally decided upon, it does need to be protected. Currently the U.S. Navy is the service most able to respond in the shortest time frame, with the most sustainability, and with the largest punch for the dollar. With respect to the Third World, the navy is in the best position to handle almost any contingency.

APPENDIX A. EXPORT AIRCRAFT CAPABILITIES

MIG-29--USSR	
Armament	Six medium range radar homing AA-10 and/or close range AA-11. Provisions for carrying AA-9 and AA-8 missiles. Able to carry bombs and 57 mm gun, 80 mm and 240 mm rockets in attack role. One 30 mm gun in port wingroot. Doppler engagement radar, IR sensor, laser rangefinder, 360 degree radar warning system, head-up display, and helmet mounted aiming device.
Performance	Max level speed: at height Mach 2.3, at S/L Mach 1.06. Max rate of climb at S/L 65,000 ft/min. Service ceiling 56,000 ft. Max range 1,300 miles.
Tornado ADV--Panavia	
Armament	One 27 mm cannon starboard side forward fuselage. Two AIM-9L Sidewinder. Four Sky Flash MRAM, and in the future, up to six AIM-20 AMRAM, and four ASRAM.
Performance	Max level speed: At height Mach 2.2. Service ceiling 70,000 ft. Intercept radius - supersonic 345 miles, subsonic 1,151 miles.
F-16--USA	
Armament	One 20 mm multi-barrel cannon in the port side wing/body fairing. Up to six AIM-9J/L sidewinders or AMRAM. Can carry gun, rockets, conventional bombs, special weapons, laser guided and electro-optical weapons in the air to ground role.
Performance	Max level speed at 40,000 ft, above Mach 2.0. Service ceiling 50,000 ft. Radius of action 575 miles. Ferry range 2,415 miles.
F-15--USA	
Armament	Provisions for four AIM-9L/M, four AIM-7F/M or eight AMRAM, and a 20 mm six barrel gun. Up to 23,600 lb of bombs and rockets for air to surface role.
Performance	Max level speed more than Mach 2.5. Service ceiling 60,000 ft. Ferry range with CFTs 3570 miles.
F-18--USA	
Armament	One 20 mm Vulcan cannon. Two AIM-9 sidewinders plus four AIM-7 sparrows in the fighter role. Or two AIM-9s plus 17,000 lbs of bombs, missiles, and rockets in attack role.

Performance	Max Mach 1.8+ at 40,000 ft. Service ceiling 50,000 ft. Radius in fighter role is 415 nautical miles, and 550 nautical miles in attack role. Ferry range is 2000 nautical miles.
Mirage 2000--France	
Armament	Two 30 mm guns. Two Matra Super 530D or 530F missiles, and two Matra 550 Magic or Magic 2 missiles. Up to 13,890 lbs of external stores in the air to surface role.
Performance	Max level speed over Mach 2.2. Max rate of climb at S/L 56,000 ft/min. Service ceiling 59,000 ft. Range with four 250 kg bombs over 920 miles, with three drop tanks 2,073 miles. * Source [Ref. 8]

*Source [Ref. 8]

APPENDIX B. EXPORT SURFACE-TO-AIR MISSILE CAPABILITIES

Crotale--France

Type: Land based point defense tactical SAM
Dimensions: diameter 5.9 in; length 9.48 ft; span 21.25 in
Weights: total round 187.4 lb; warhead 30.64 lb BAe infra-red proximity-fused focalized FRAG-HE
Propulsion: solid propellant rocket
Performance: speed Mach 2.3; range 545/14,215 yards; altitude limits 50/16,405 ft.
Guidance: radar command with infra-red/radar gathering and tracking

Shahine--France

Type: land and ship based point defense tactical SAM
Dimensions: diameter 6.14 in; length 10.33 ft; span 23.23 in
Weights: total round 231.5 lb; warhead 30.9 lb infra-red proximity and impact fused focalized FRAG-HE
Propulsion: One dual thrust solid propellant rocket
Performance: speed Mach 2.5; range 545/15,310 yards; altitude 50/22,310 ft
Guidance: radar command with infra-red/radar gathering and tracking

Roland--Euromissile

Type: land based point defense tactical SAM
Dimensions: diameter 6.3 in; length 7.87 ft; span 19.7 in
Weights: total round 146.6 lb; warhead 14.3 TRT radar proximity and impact fused FRAG-HE
Propulsion: One solid propellant booster rocket and one solid propellant sustainer rocket
Performance: speed Mach 1.6; range 545/6890 yards; altitude; 65/18045 ft
Guidance: IR gathering then optical or radar semi-automatic radar command to line of sight

Javelin--UK

Type: man portable point defense tactical SAM
Dimensions: diameter 3.0 in; length 4.59 ft; span 10.9 ft
Weights: missile 33.8 lb; warhead proximity and impact fused FRAG-HE
Propulsion: one two stage solid propellant rocket
Performance: speed Mach 1.5; range 325/6,000 yards; altitude 0/6,500 ft
Guidance: semi automatic command to line of sight

Rapier--UK

Type: land based point defense tactical SAM
Dimensions: diameter 5.25 in; length 7.35 ft; span 15.0 in
Weights: total round 94 lb; warhead 3.1 lb impact fused semi armor piercing HE
Propulsion: one solid propellant dual thrust rocket
Performance: speed Mach 2+; range 270/7,500 yards; altitude limits 0/10,000 ft
Guidance: optical semi automatic command to line of sight

SA-13--USSR

Type: land based point tactical SAM
Dimensions: diameter 4.72 in; length 7.22 ft; span 15.75 in
Weights: total round 121 lb; warhead 8.8 lb impact and proximity fused FRAG-HE
Propulsion: one solid propellant rocket
Performance: speed Mach 2; range 550/10935 yards; altitude limits 33/32,810 ft
Guidance: IR homing

SA-14--USSR

Type: man portable point defense tactical SAM
Dimensions: diameter 2.95 in; length 4.625 ft; span unknown
Weights: total round 21.285 lb warhead proximity fused FRAG-HE
Propulsion: one solid propellant rocket
Performance: supersonic; range 655/6,650 yards; altitude 33/18,045
Guidance: IR homing

I-HAWK--USA

Type: land based medium range area defense tactical SAM
Dimensions: diameter 14.0 in; length 16.79 ft; span 4.0 ft
Weights: total round 1383 lb; warhead 120+ lb proximity fused FRAG-HE
Propulsion: one dual thrust solid propellant rocket
Performance: speed Mach 2.5; range 25 miles; altitude 100/49,000 ft
Guidance: semi active radar homing

Stinger--USA

Type: man portable point defense tactical SAM
Dimensions: diameter 2.75 in; length 5.0 ft; span 3.6 in
Weights: total round 22.3 lb; warhead 6.6 lb proximity fused FRAG-HE
Propulsion: one dual thrust solid propellant rocket

Performance: speed Mach 2+; range 5,500 yards; altitude 15,750 ft
Guidance: IR homing
* source [Ref. 7] and [Ref. 9]

APPENDIX C. SELECTED THIRD WORLD REGIONS--COMBAT AIRCRAFT
RADII

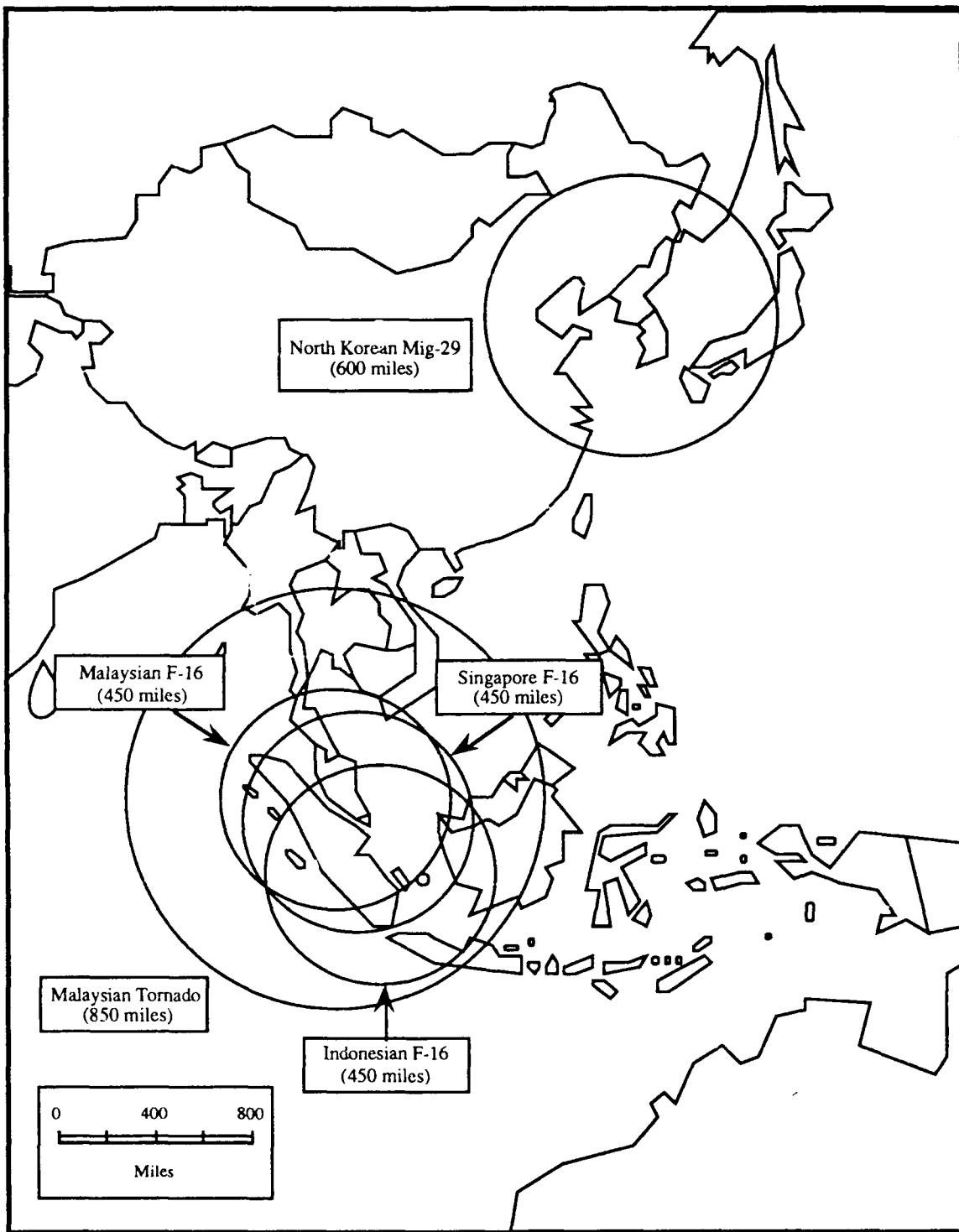


Figure C-1. Far East Region

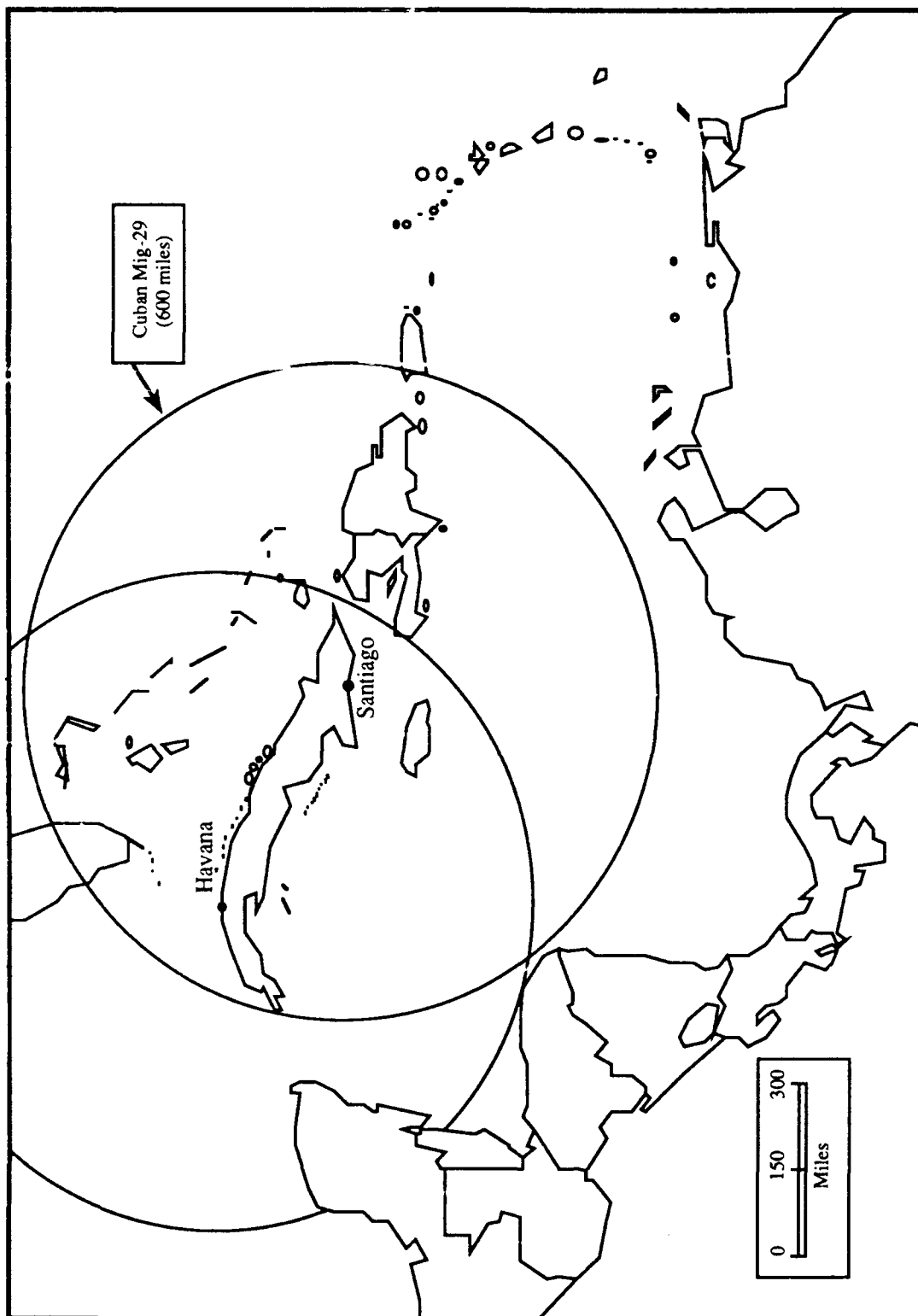


Figure C-2. Caribbean Basin Region

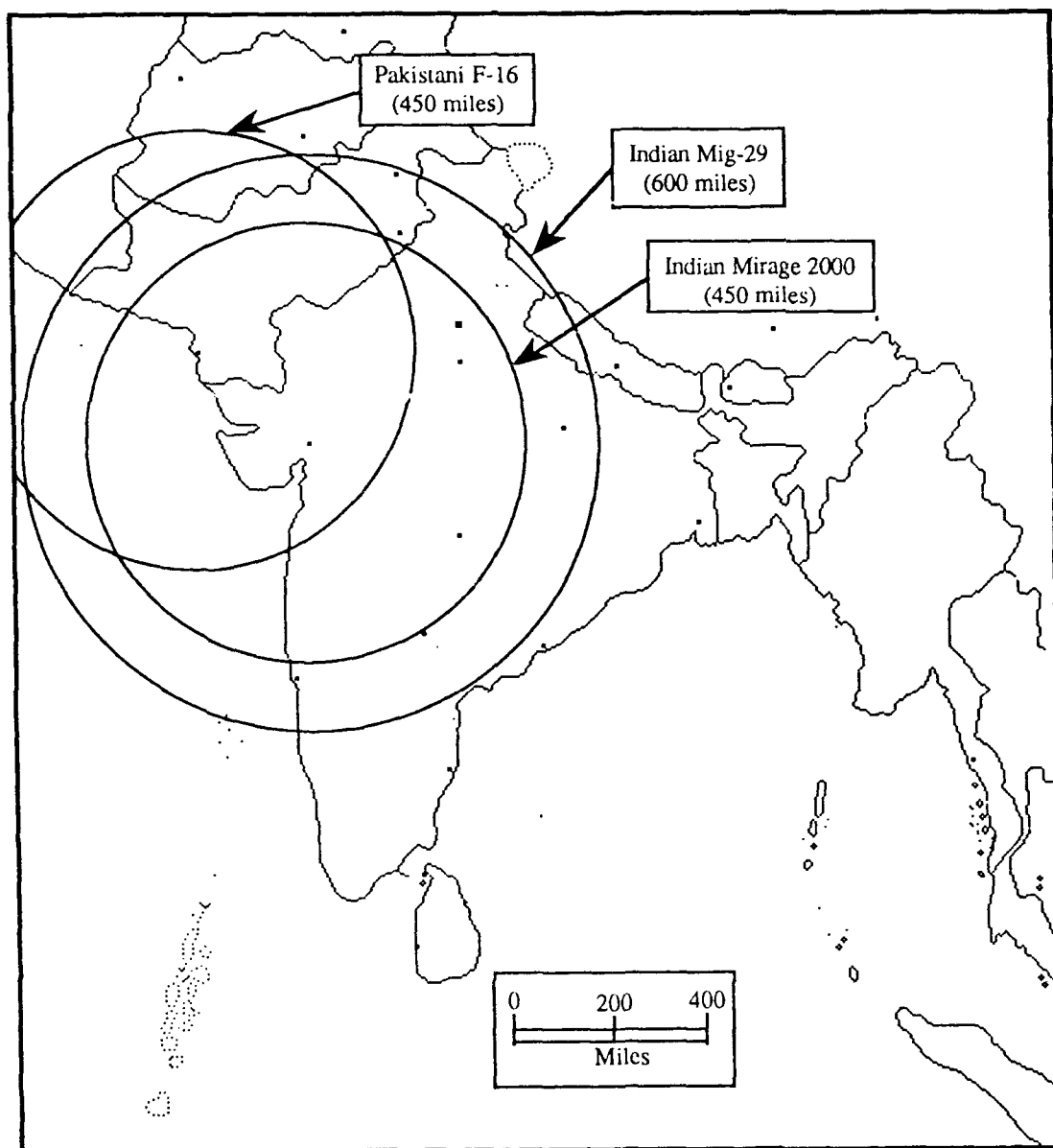


Figure C-3. North Arabian Sea Region

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